

**Delicateness and Freedom in composition:  
A cross-cultural exploration of timbre and texture through  
American minimalism and French spectralism**

An exegesis submitted in partial fulfilment of the  
requirements for the award of the degree

**MASTER OF RESEARCH**

By

**Emma Harlock**

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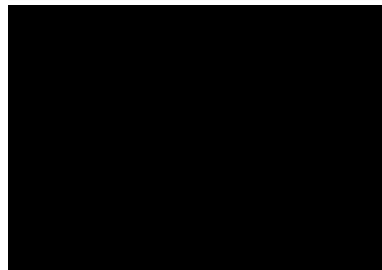
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## Statement of Authentication

The work presented in this exegesis, is to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material either in full or in part, for a degree at this or any other institute.



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## Abstract

This thesis explores the intersections between American minimalism and the school of French spectral music, from the perspective of a bass guitarist. Whilst there is ample literature exploring key composers and features of American minimalism, and some literature exploring French spectral music and experimental bass styles, there is little scholarly discussion of the relationship between. Adopting a practice-based research approach, five new musical artefacts have been created to fulfil the portfolio aspect of this thesis. These creative works, three electronic improvised pieces, and two scored pieces, address this gap in academic knowledge.

My thesis outlines and provides context for ethical border crossing and the creation of new hybrid territories applicable to practice-based researchers using the framework outlined by Steven Nuss. It illuminates the relationship between American minimalism and French spectralism, but also their connections to American nu-jazz, ambient, and electronic artists, and explores the potential of these musical elements combined. This thesis outlines the intersections through an analysis of pre-existing works, focussing on: rhythm and pulse, harmonic stasis, improvisation, and aleatoric elements. This is then followed with an analysis of each creative work within the portfolio, where these musical characteristics from each seemingly contrasting genre are brought together to create new works in a hybrid territory. The term ‘delicacy’ stems from my personal approach to bass playing, slow, small musical gestures, as opposed to large, focally demanding gestures as often adopted by bass virtuosos. The term ‘freedom’ stems from improvisatory elements incorporated across the creative portfolio, from the improvised series *Concept:FUTURE*, to aleatoric elements in the notated works that allows performers to determine certain parameters of the creative works.

Ultimately, this thesis shows, through the creation of new scored and improvised works, the inherent connections between American Minimalism and French spectralism, with added influence from electronic and improvising virtuosos, and explores what happens when these styles are fused together.



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# Volume One

## Chapter One: Introduction

This research project is concerned with looking at the intersections between American minimalism and French spectralism, an area neglected in music academia, through a practice-based research approach. The portfolio attached to this research paper consists of one large-scale work, titled *Concept:FUTURE*, containing three movements titled “Green”, “Blue”, and “Black”, and two notated works, titled *Dissonance* and *Grain*. Each of these works are concerned with exploring the connections between American minimalism and French spectral music, but also my interests as a bass guitarist, and other musical genres that have influenced my creative works; influences such as ambient music, nu-jazz, and electronic dance music.

Through the use of cross-cultural frameworks created by Steven Nuss<sup>1</sup>, this project is able to take on the exploration of multiple musical cultures ethically and respectfully. Rather than attempting to create works that are ‘pure’ recreations of American minimalism, French spectralism, or other influencing styles, this project has fused compositional characteristics from each musical style and created a new culture, one applicable solely to my own interests.

The question of what happens when these musical styles are fused together will be addressed, alongside an exploration of the inherent connections between American minimalism and French spectral music through analyses of pre-existing works and the creation of works that utilise key compositional elements of these styles.

In the second chapter, titled *credo*, I begin by outlining the key musical styles that influence my creative voice<sup>2</sup>. I explore the foundations of American minimalism and French spectralism in depth, and discuss American jazz funk and nu-jazz, focussing on American bass virtuosos Stanley Clarke, Marcus Miller, and Victor Wooten in their collaborative project *S.M.V.* This chapter will also explore ambient and nu-jazz performers *Triosk* and *GoGo Penguin*, alongside electronic artists Jon Hopkins and Nils Frahm. These musical explorations are undertaken through the cross-cultural framework set out by Steven Nuss and

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<sup>1</sup> Nuss, Steven. “Hearing “Japanese”, Hearing Takemitsu”, *Contemporary Music Review* 21, No. 4 (2002): 35-71.

<sup>2</sup> By this, I am referring to composers, such as Lucy Wilkins, who argue that it is the personal ‘voice’ that makes the work of a composer distinctive. See Wilkins, Lucy. *Creative Music Composition: The Young Composer’s Voice*. (NY: Routledge Publishing, 2006).

his concept of hybrid cultural territories<sup>3</sup>, which will also be discussed in this chapter. The framework outlined by Nuss is then used to examine how this research project adopts an ethical approach to cross-cultural research, and the creation of a new hybrid territory authentic to my own interests.

The third chapter, context, is concerned with the examination of pre-existing creative works by influencing composers and performers of this project. By undertaking an analysis of works by key composers, I am able to ground my portfolio of creative works with works from other composers and performers, acting as a musical literature review for the research project. The analysis of key works will be centred around the primary compositional characteristics influencing my own creative works: rhythm and pulse, harmonic stasis, extended techniques, improvisation, and aleatory. Key works by the featured composers are analysed with specific focus on the treatments of these compositional characteristics.

The fourth chapter, analysis, is concerned with the analysis of my own creative works. In this chapter each creative work within the portfolio is analysed in depth, and conceptual ideas outlined. Both notated works *Grain* and *Dissonance* are primarily concerned with timbre, texture, extended techniques, and aleatoric elements, and these compositional techniques are explored in depth in relation to their presence within those creative works. With *Concept:FUTURE*, an analysis of those elements plus rhythm and pulse is undertaken, and the conceptual influence of the climate crisis explored. These two creative outlets, scored and improvised works, are connected through the influence of Chinese cosmology, specifically *qi*<sup>4</sup>, through the concepts of breath and balance, which is discussed in depth.

This research project has been undertaken from the perspective of a ‘reflective practitioner’, where ideas are trialled through improvisation, notated or performed, and reflected upon<sup>5</sup>. This process aims to reinforce the research project’s validity as creative research and underline that this cross-cultural musical research paper has been undertaken through creative practice and reflection upon the artefacts created. All cross-cultural research has been undertaken through the framework outlined by Nuss, and each border crossing has been taken delicately; each musical culture examined treated as equal.

This project has three outcomes, as addressed throughout this paper. The first is concerned with addressing the gap in academic knowledge, the inherent connections between

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<sup>3</sup> Nuss. ‘Hearing “Japanese”, Hearing Takemitsu’: 39-44

<sup>4</sup> Ho, Edward. “Aesthetic considerations in Understanding Chinese Literati Musical Behaviour” in *British Journal of Ethnomusicology* Vol. 6 (1997): 35-49

<sup>5</sup> Schön, Donald A. *How Professionals Think in Action* (USA: Basic Books, 1983): 3-20.

American minimalism and French spectralism, a relationship that has not previously been discussed. The second is the contribution to artistic knowledge, the creation of a new hybrid territory, consisting of chosen elements from various musical styles, such as American minimalism, French spectralism, ambient, electronic, and nu-jazz. The third is the opening up of dialogue surrounding the most significant issue facing humanity: the climate crisis. This third impact has been a direct result of one of the creative series within the portfolio, *Concept:FUTURE*. My interest in the current climate crisis has emerged subconsciously from the Australian soundscape tradition, where soundscape artists such as Ros Bandt<sup>6</sup> and composer Peter Sculthorpe<sup>7</sup> draw from their surrounding environments to inspire new creative works. A deep exploration of the Australian soundscape tradition is beyond the scope of this research project; however, it is important to note that it is an influencing movement.

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<sup>6</sup> For examples of Bandt's creative voice, see such works as *Stack*, and 'Starzones'. Bandt, Ros. *Stack* (2001). Move Records. A link to part of the album can be found here: <https://www.youtube.com/watch?v=Mo0XX5XrEOI>; and Bandt, Ros. 'Starzones' from *Stargazer* (1989). Move Records. A link to this album can be found here: <https://www.youtube.com/watch?v=FImSIRKfIU>.

<sup>7</sup> For examples of Sculthorpe's creative voice, see such works as *Kakadu*. Sculthorpe, Peter. *Kakadu* (1988), New Zealand Symphony Orchestra (2004). Available at: [https://www.youtube.com/watch?v=N2qqj1\\_ILyA](https://www.youtube.com/watch?v=N2qqj1_ILyA)

## Chapter Two: Credo

The purpose of this credo is to give context for this research project, outlining the musical influences for my own creative works and the philosophical grounding for this project. Beginning with an outline of the two key musical genres that are primary sources of influence, American minimalism and French spectral music, I will outline the main compositional techniques and concerns of these musical styles. This chapter will then cover the other influencing musical styles, and a brief musical history of my own experiences and how I have come about my own approach to composing. My own compositional voice is driven through my improvisatory approach to bass playing, with the exploration of timbre as the primary focus within my creative works.

### Pulse, timbre, *qi*, and American minimalism

American minimalism began in New York as a means to bring tonality back in music during a time when serialism and modernism dominated. It sought to challenge traditional composition and performance techniques of the time, creating works where emphasis is placed on changing timbres and texture, rather than traditional goal-oriented harmony, and has resulted in one of music's most prominent paradigm shifts that continues to have an impact today<sup>8</sup>. Composers such as Steve Reich utilise contrapuntal rhythms across doubled instruments to create interest<sup>9</sup>, borrowing techniques from West African music. Little focus is placed on rapidly shifting harmonic progression, but rather on the layers of shifting timbre in the instrumentation. As noted by Wim Mertens:

*“Strictly speaking the term minimal can only be applied to the limited initial material and the limited transformational techniques the composers employ, and even this is only the case in the earlier works of Reich and Glass. Certainly one can usually observe in this music a dominant equality of timbre and rhythm, a constant density and a very limited number of pitches<sup>10</sup>.”*

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<sup>8</sup> Potter, Keith, Gann, Kyle. *The Ashgate Research Companion to Minimalist and Postminimalist Music* (United States: Ashgate, 2013): 24-25

<sup>9</sup> See such works as Steve Reich's *Music for 18 Musicians* which utilises the master and chaos rhythm technique from West African music. Reich, Steve. *Music for 18 Musicians* (1976), Synergy Vocals and Ensemble Intercontemporain (2014). A recording can be found here: <https://www.youtube.com/watch?v=HrAnO7FuqIo>

<sup>10</sup> Mertens, Wim. “Minimal Music” in *American Minimal Music* (Kahn & Averill, 1983): 12.

What began as a complete reduction of musical techniques, minimalism has continued to increase its use of varied pitch, timbre, and textures as the composers involved have continued to develop their compositional voices. Mertens' brief explanation of minimalism is limiting but does allow for a brief overview of the style. Rather than utilising dense, quickly changing harmonic progression, or rapidly evolving structures, American minimalism adopts a more static use of harmonic progression and pitch, and the structures are often less easily definable and more slowly evolving. This is a quintessentially minimalist technique, allowing for a sense of meditative development that minimalism is known for. However, American minimalism is not black-and-white, with one strict set of compositional rules that composers must adhere to. Steve Reich<sup>11</sup> and Philip Glass's<sup>12</sup> works are vastly different listening experiences, both utilising the same compositional focus as each other: the exploration of timbre. It is largely through the subtle shifts in timbre within the repetitive musical gestures that interest is created in minimalist works.

Steve Reich operates in a hybrid cultural territory, borrowing compositional techniques from West African music, whilst Glass drew on East Asian concepts related to breath and stasis<sup>13</sup>, fusing them with the Western classical cannon. It is the rhythmic influences borrowed from West African tribal music that defines his compositional voice. The use of hypnotic, constant, rhythmic pulsing creates an effect unlike any other, and it is this that helps to define his voice from other minimalist composers – like the works of Philip Glass. Comparatively, Philip Glass draws inspiration from Chinese *qi* energy, embracing the concept of vital energy and balance. This is evident throughout his body of creative works, where balance between sections and instrumentation grouping is equal, and where the sense of ebbing and flowing, and of energy slowly evolving, is present. A discussion of the influence of *qi* in Glass's body of works, and an exploration of West African influences on Reich's creative voice, will be undertaken in the following chapter.

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<sup>11</sup> For further discussion on Steve Reich's compositional techniques and influence on contemporary classical composers, see Potter, Keith. "Steve Reich: Thoughts for his 50<sup>th</sup> Birthday Year" in *The Musical Times*, Vol. 127, No. 1715 (1986): 13-17, and Schwarz, K. Robert. "Steve Reich: Music as a Gradual Process: Part I" in *Perspectives of New Music*, Vol. 19, Nos. 1 and 2: (1981): 373-392; and Schwarz, K. Robert "Steve Reich: Music as a Gradual Process: Part II" in *Perspectives of New Music*, Vol. 19, Nos 1 and 2 (1981): 225-286.

<sup>12</sup> For further reading see: Potter, Keith. "Writings on Glass." *TLS, the Times Literary Supplement*, no 5013 (1999).

<sup>13</sup> See Scott Hicks' documentary where Glass notes his influences from Chinese cosmology. Hicks, Scott. *Glass: A Portrait of Philip in Twelve Parts*, (NYC: Koch Lorber Films, 2007).

## Timbre, frequencies, and the French school of spectral music

The French school of spectral music began in the same manner as American minimalism, the composers involved were attempting to rebel against serialism and its atonality. Spectralism's development can be traced back to three major developments in musical history, as noted by Kari E. Besharse:

*“The roots of the spectral movement can be traced down three main paths: (1) an investigation of the relationship between music and the physical laws of acoustics, (2) an interest in using timbre as a primary element in music composition, and (3) the development of new technologies<sup>14</sup>.”*

These three camps of interest aided in the birth of spectralism, a movement deeply concerned with the exploration of texture and the inner frequencies of individual musical notes. Where minimalism stripped composition back to the essentials and placed timbre at its core, spectralism stripped music back to its essential compositional elements and chose to bring textural exploration to the forefront. Gerard Grisey, one of the composers heralded as a key pioneer in the birth of spectralism, explores the internal frequencies of individual notes in ensemble settings. This is evident across all of his creative works, and especially so with *Partiels*<sup>15</sup>, a piece written around the analysis of an E2 played on a trombone at forte (82.4Hz). Through the use of frequency analysis programs, Grisey was able to create a piece that not only explored the inner frequencies of an E2 on a trombone, but also incorporated studio techniques into an orchestra, such as additive synthesis and FM synthesis. The use of electronic techniques incorporated into orchestras is a key characteristic of spectral music. Like American minimalism, French spectralism compositional styles are just as varied between composers, and the dislike of being labelled a ‘spectralist composer’ is deep. Although composers such as Gerard Grisey and Tristan Murail<sup>16</sup> may adopt different approaches to composing, and their outcomes may sound different, they remain concerned with the same key principal across their works: textural exploration.

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<sup>14</sup> Besharse, Kari E. “The Role of Texture in French Spectral Music”, (PhD Diss., University of Illinois, 2009): 5

<sup>15</sup> Grisey, Gerard. *Partiels*, (1975), performed by Asko Ensemble (2005). A recording of this work can be found here: <https://www.youtube.com/watch?v=1v7onrjN6RE>

<sup>16</sup> For an example of Tristan Murail’s works, see *Ethers*. Murail, Tristan. *Ethers*, (1978), performed by Agento Chamber Ensemble (2006). A recording of this work with attached score can be found here: <https://www.youtube.com/watch?v=CqHbVzmtSrs>



The composers that influence this project operate within a spectrum of ‘prescribed’ notation, where the notation is strict and the desired notes, pitch, tempo, and volume are all specifically noted, to ‘totally free’, where these elements are either not specified or ambiguous. Within this spectrum is ‘guided improvisation’, where some of these elements are specified, but not all. At the most prescribed end sit composers such as Steve Reich, who specifies all elements for the performers involved, and at the totally free end sit improvising jazz performers such as John Coltrane, who creates improvised music.

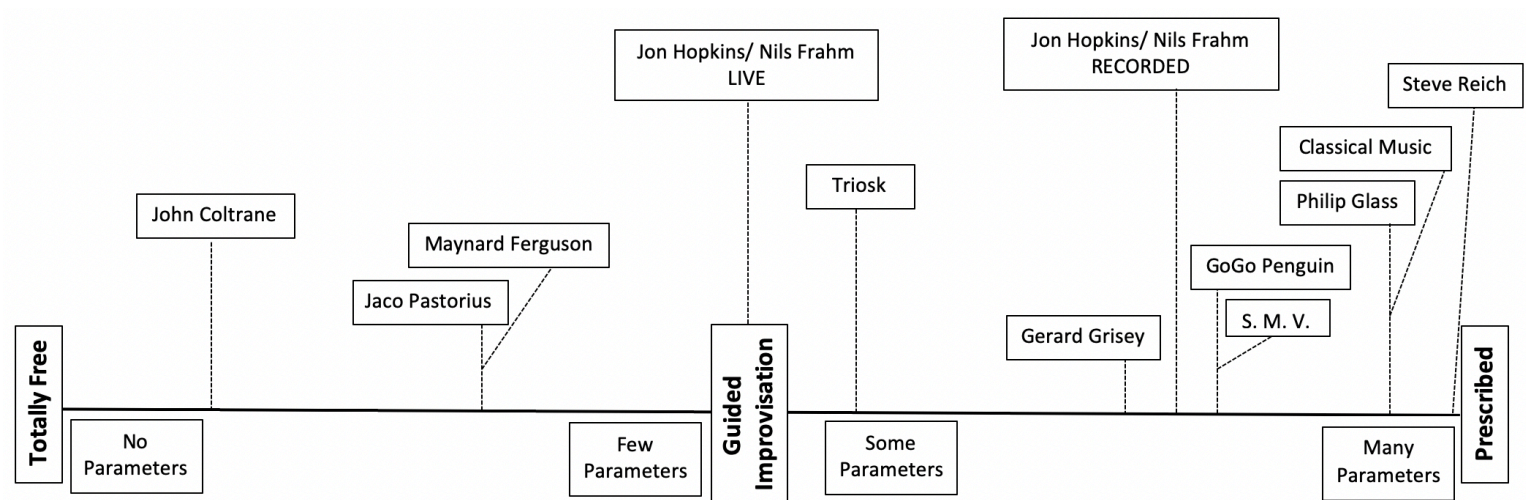


Figure 2.1: A graph showing the spectrum that composers/performers sit between ‘prescribed’ and ‘totally free’. This is by no means a definitive graph, but it shows the varying levels of all influencing artists and others.

## Jazz and electronic dance music

Alongside these musical influences, sit various other musical works that have been pivotal in aiding the development of my creative ‘voice’. The Sydney-based nu-jazz improvisation trio Triosk<sup>17</sup>, and British ensemble GoGo Penguin<sup>18</sup>, and electro-ambient

<sup>17</sup> See works such as “Visions IV” for examples of their works. Triosk. “Visions IV” (2006). A link to the work can be found here: [https://www.youtube.com/watch?v=d1H4\\_koGPW8](https://www.youtube.com/watch?v=d1H4_koGPW8).

<sup>18</sup> GoGo Penguin. “Live Improvisations from Old Granada Studios” (2016). See: <https://www.youtube.com/watch?v=UokxELNWk4>

performers Jon Hopkins<sup>19</sup> and Nils Frahm<sup>20</sup> are amongst the key influences in my ‘inspiration pool’. Triosk and GoGo Penguin are ensembles operating within the nu-jazz style, both ensembles utilising a piano, double bass/bass guitar, and drum kit setup. Where Triosk include elements of electronics (tape machine sounds, and delay), GoGo Penguin adopt a more acoustic approach, though there are often effect pedals incorporated into the double bass, something that I have chosen to incorporate into *Grain*. Triosk also adopt a more ambient, subtle and slowly evolving sound, where their musical ideas are explored thoroughly and developed slowly, allowing every element to be heard and explored before moving on. Their sound, though consisting of a smaller set up, takes on an immersive quality, everything sitting reasonably centred for listeners, often with a sense of subtle shifted pulsing. It is Triosk’s meditative ambience, slowly moving structures, and shifting pulses that interests me and inspires my own works, particularly *Concept:FUTURE*.

GoGo Penguin’s sound differs greatly from Triosk’s, their overall sound sitting closer to the nu jazz genre than the ambience of Triosk. Their pieces often utilising faster pulses, with more importance placed on harmonic enrichment and progression. Structurally, their works also develop faster than Triosk’s, and the sense of pulsing is more rigid and constant. What is interesting to note though, is the way that the double bass player approaches his instrument, rejecting the preassigned roles of ‘rhythm keeper’ often given to the bass and opting instead to play more melodic, rhythmically interesting phrases. Further interest in the double bass is created through the use of effect pedals, which the performer uses to significantly vary his tone between pieces. The approach adopted by the bass, filling the role of a dronal bedding, melodic fragments, and percussive figures alongside the use of various effect pedals placing the tone of the bass at the centre is what interests me, and I have chosen to adopt these musical approaches into my own practices, evident across the portfolio of creative works.

Nils Frahm and Jon Hopkins are two other composer-performers worth noting that influence my own works, both operating within the electronic dance music scene. Nils Frahm’s approach to music is more improvisational than Hopkins, incorporating his practices

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<sup>19</sup> See works such as Jon Hopkins’ album *Immunity* as an example of his work. Hopkins, Jon. *Immunity* (London, Domino Records, 2013). A link to the full album playlist can be found here:

<https://www.youtube.com/watch?v=PYUF74K93IY&list=PLUlrPpQ3-J0e8KAyr6JEQXp8rN030UU6G>

<sup>20</sup> See works such as Nils Frahm’s “Says” and his album *Spaces*. Frahm, Nils. *Spaces*, (London, Erased Tapes, 2013); A link to the full album be found here: <https://www.youtube.com/watch?v=cLtp6CnJjFk>; Frahm, Nils, A link to a live rendition of “Says” can be found here: <https://www.youtube.com/watch?v=xLNeZogTsK8>

Another important work to note is Nils Frahm’s collaboration with duo A Winged Victory for the Sullen performance at the 2015 BBC Proms. A live recording of the work can be found here: <https://www.youtube.com/watch?v=e1mHyj3lubQ>

on piano with modular synthesisers and electronics. Frahm's works adopt a strong sense of harmonic movement, percussive voices, and definitive pulses. Texturally, interest is created across his works in the differing timbres adopted across the electronic voices, often combinations of melodic-like phrases alongside heavily percussive sounds.

Jon Hopkins's approach to music however leans more towards electronic dance music than Frahm's practices, with rigid tempos and a definitive backbeat that never shifts in tempo. Interest across Hopkins' works is created through shifting timbres across the electronic voices throughout, a technique crucial to the composition of electronic dance music.

It is both Frahm's and Hopkins's fusion between electronic dance music and the contemporary classical paradigm that interests me. I borrow elements from both composers, such as the sense of shifting pulses featured in Frahm's works, to the slowly unfolding structures of Hopkins' works, and incorporate these techniques into my creative works. These influences are most evident across my performative series *Concept:FUTURE* and will be discussed in the following chapter.

## **Personal bass playing**

Before delving into an analysis of my own works, it is important to note my electric bass guitar influences and personal history with the instrument. My bass history stems from several years in school concert bands, often playing a combination of trombone, tuba, bassoon and contrabass scores on the electric bass, depending on what the piece had and where the low end needed more support. Alongside concert bands, I participated in school musicals, once again playing a combination of the cello, trombone, tuba, and double bass books that I would play on the electric bass, and then a school jazz band. It was in the jazz band that I discovered that the bass guitar wasn't an instrument locked solely into maintaining a rhythm, or reinforcing the lower spectrum of a band, but an instrument that had unlimited capabilities. This was further reinforced to me at university, where improvisation classes sat at the core of the performance stream. By the end of my undergraduate degree I had discovered not only that the bass guitar was an instrument of unlimited potential, but also a love for ambient music and improvisation. Bass virtuosos such as Jaco Pastorius, Marcus Miller, Jaco Pastorius, Stanley Clarke, and Victor Wooten sat at the heart of my interest in bass, fuelling my explorations of extended techniques on the electric bass. Having an eclectic interest in musical styles has allowed me to incorporate elements from different genres into

my own practices, whether that be bass figures from blues charts, or extended techniques such as slapping and popping from both jazz and rock music<sup>21</sup>, tapping or hammering on from solo bass performers<sup>22</sup>, or other more experimental techniques such as mallet or drum stick work on various parts of the bass. One of the most influential bass works that has helped to shape my approach to the instrument is ‘Thunder’, featured on Stanley Clarke, Marcus Miller, and Victor Wooten’s collaboration album titled *S. M. V.*<sup>23</sup>. The piece consists of drums maintaining tempo, keys stabbing to thicken the overall texture, and a vocal sample that appears in the opening. Sitting above this is Stanley Clarke, Marcus Miller, and Victor Wooten, all playing electric bass guitar, each taking turns in laying the groove, playing the harmony, creating rhythmic interest through extended techniques on the bass, or playing more melodic phrases. The interest sits in how each performer adopts a different tone to one another, and how their approach to solos and melodic fragments differ. From bass virtuosos such as Stanley Clarke, Marcus Miller, and Victor Wooten, it is their approach to melodic playing and exploration of timbre through extended techniques that inspires my own approach to bass playing, and composition.

## Musical culture fusing, and a new hybrid territory

Steven Nuss’ exploration of border crossing and new hybrid territories is central to my research<sup>24</sup>, and it is his theory of the third camp of cultural exploration that this research project is embedded within<sup>25</sup>. By utilising an eclectic pool of inspiration, varying from jazz, to electronic music, and ambient music, minimalism, and spectralism, an authentically ‘new’ territory<sup>26</sup> has been created, one unique and applicable to my own practices and interests. As Nuss notes:

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<sup>21</sup> See ensembles such as jazz ensemble Weather Report or rock band Red Hot Chili Peppers for examples of extended techniques used in these settings. Weather Report. Live at Montreal Jazz Festival (1982). A video of this performance can be found here: <https://www.youtube.com/watch?v=8cpwaq7CxD4>; Red Hot Chili Peppers, Live at Hyde Park (2004). Available at: <https://youtu.be/DvdVrgWBgzQ>

<sup>22</sup> See performers such as Aram Bedrosian, who composes solo bass guitar works and explores various extended techniques available on the bass guitar. Bedrosian, Aram. “A Dark Light” (Canada, Aram Bedrosian, 2017). A link to the piece can be found here: <https://www.youtube.com/watch?v=ko5LE9DBtC0>

<sup>23</sup> S. M. V. “Thunder” Performed live at Jazz Festival Vitoria-Gastetz (2009). A live performance of this entire album can be found here, ‘Thunder’ features from 3:57-12:10. <https://youtu.be/A5BkCp4KfZ0>

<sup>24</sup> Nuss. ‘Hearing “Japanese”, Hearing Takemitsu’: 39-44

<sup>25</sup> By Nuss’ third camp of theory, I am referring to his camp that defines culture as being accessible to all, and able to be learned. Ibid: 42-44

<sup>26</sup> Ibid, 44

*“For the diverse forms of cultural traffic that have shaped the contemporary world and the personal baggage that we take with us when we make a border crossing have both a continual fracturing effect on the established (constructed) and developing cultural sites, and the power to create anew<sup>27</sup>.”*

Nuss explores the key idea within his third camp of cultural exploration that cultures can be learned, and that by border crossing one is not attempting to appropriate a culture, but rather fracture the influencing cultures, and create a new cultural territory. For my own research, I am primarily borrowing from American minimalism (Culture A), French spectralism (Culture B), funk jazz/nu-jazz (Culture C), and electronic/ambient music. Rather than my works creating a subculture of A, B, or C, my works are creating a new cultural territory, Culture D. By borrowing compositional techniques that are quintessentially ‘minimalist’ or ‘spectralist’, and fusing them together with my own eclectic interests, I have fractured these known genres and created an authentically new area to operate within. Each inspiring musical genre is

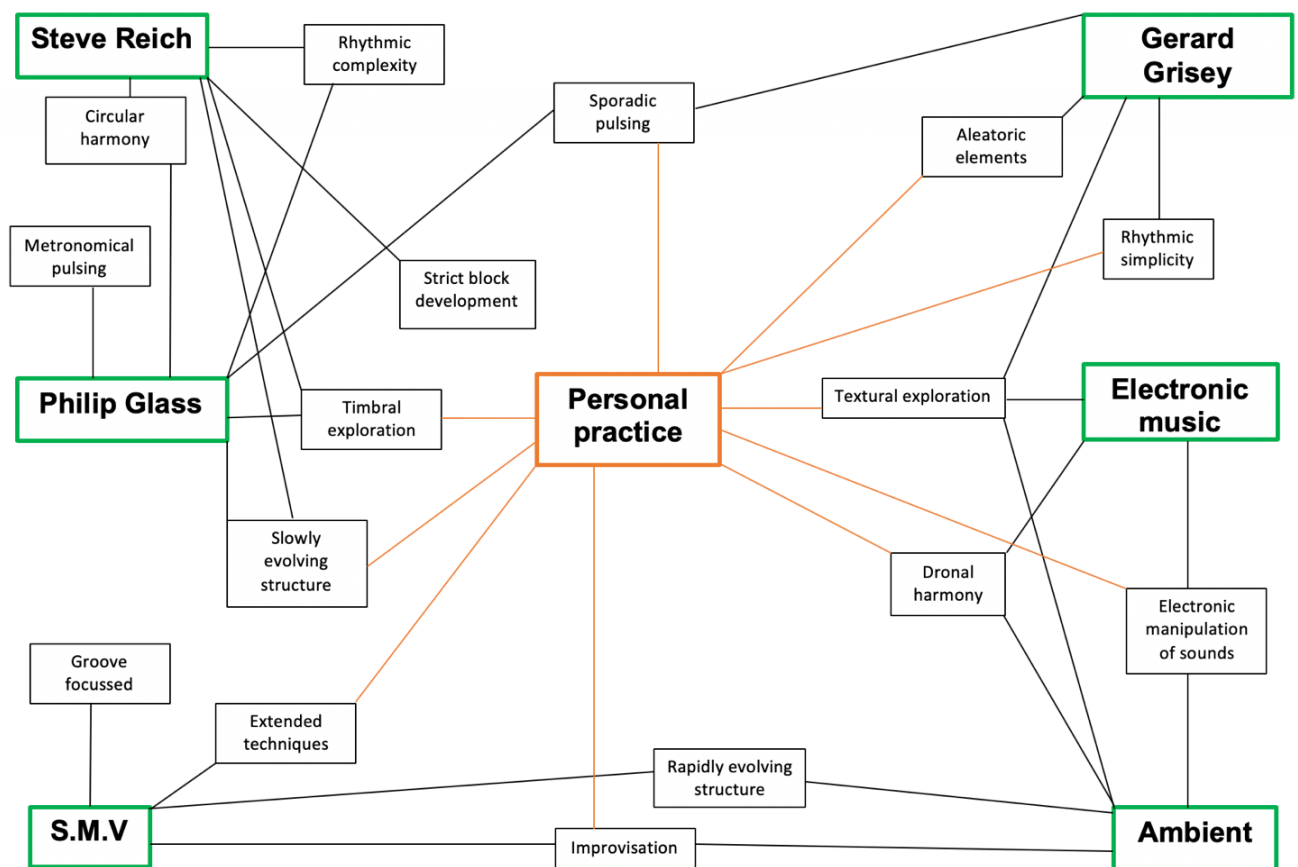


Figure 2.2: A graph showing some of the connections between the influencing composers/performers, alongside the compositional elements adopted in my own creative practices.

<sup>27</sup> Ibid, 44.

treated with equal importance, and key compositional techniques or characteristics that are borrowed from these genres are crucial to my own compositional voice.

It is also important to note that each genre that inspires my own creative works share common compositional characteristics, and it is difficult to note where select techniques have been borrowed from, or which genre is the most influential to my own works. However, borrowing from American minimalism, I have chosen to adopt the hypnotic nature, slowly evolving structures, and the ‘master and chaos’<sup>28</sup> rhythmic density that’s often featured in Reich’s works. This is most evident in my improvised series *Concept:FUTURE*. What is also important to note about *Concept:FUTURE* is the influence of Chinese cosmology on the composition of the series, the idea of *qi*, of breath and balance. Whilst I accept and recognise that Philip Glass was heavily influenced by Chinese cosmology, my music does not consciously draw from *qi*, though this concept is deeply embedded within my own music subconsciously. A deep exploration of Chinese cosmology and Glass’s heavy influences on *qi* is beyond the scope of this project, though this will be briefly discussed further on with specific focus on how *qi* influences the composers in question. From spectralism, I have chosen to adopt the exploration of timbre, aleatory and free notated composition, which is evident in my scored works *Grain* and *Dissonance*. What combines these two seemingly contrasting styles, making this project a truly unique one, is my bass practices. All areas of composition undertaken throughout this project, both recorded performances and notated scores, have been approached from the perspective of a bass player and is what makes this research projects approach to composition unique<sup>29</sup>.

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<sup>28</sup> By referring to the concept of ‘master and chaos’ rhythms, I am referring to the rhythmic nature of West African music; where there is often one ‘master’ rhythm and other non-synchronised rhythms playing together, creating a sense of rhythmic chaos. See Kingslake’s notes on the ‘master and chaos’ rhythms of West African music. Kingslake, Reverend Dr Brian. Review of *Studies in African Music*, by A. M. Jones, *African Music* 2, No. 2 (1959): 85.

<sup>29</sup> It is important to note that other composers are also creating works inspired by key climate change speakers, such as Greta Thunberg. Composers such as Robert Davidson, who recently premiered an ensemble and video work to Greta Thunberg’s most “How Dare You” speech, which can be found here. Davidson, Robert. “Greta Thunberg’s ‘How Dare You’ Speech” performed by *Megan Washington and Robert Davidson* (December, 2019). Available on *The Guardian*, <https://www.theguardian.com/environment/video/2019/dec/09/greta-thunbergs-how-dare-you-speech-performed-by-megan-washington-and-robert-davidson-video>

## Chapter Three: Context

The purpose of this chapter is to discuss the characteristics of my personal compositional voice, and how the multiple areas of interest have influenced my creative voice. American minimalism, French spectralism, American jazz and nu-jazz, electronic music, and ambient music are the key influencing areas for my voice and have helped to shape my creative works. Either by borrowing key compositional techniques, or subconsciously shaping my compositional craft, elements of these genres have been borrowed and fused together to create a new hybrid territory authentic to my own practices. Whilst there are two distinct creative voices that have emerged between my improvised and notated works, they continue to inform each other and share common musical characteristics.

Within my notated and performative works, there sit key compositional characteristics that drive the pieces: rhythm and pulse, harmonic stasis, extended techniques, improvisation, and aleatoric elements. Undertaking a brief survey of the field, I will explore how the key composers utilise these compositional techniques through an analysis of their works. I will then note how these compositional elements are treated in the following chapter. It is also important to note that these compositional elements are so heavily interlinked in both American minimalism and French spectralism that it is impossible to separate them, however an attempt at mapping the compositional characteristics has been made.

### Rhythm and Pulse

Rhythmic interest is a key component in Steve Reich's works, contrapuntal rhythms sitting at the heart of his creative voice, a technique borrowed from West African music<sup>30</sup>. As noted by Reverend Dr Brian Kingslake in a review of A. M. Jones's *Studies in African Music*:

*"[Jones's book] introduces us into a strange enchanted world of pure sound, made up almost entirely of complex patterns of drum and gong taps. To call these "complex" is an understatement; the very thought of them makes one dizzy! Imagine*

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<sup>30</sup> Music from West Africa is known for its complex percussive rhythms, often heavily syncopated and disregarding traditional western compositional characteristics. A further explanation of the intricacies of West African drumming music can be found here, where contrapuntal rhythms (or master-and-chaos rhythms) are further explained. Kingslake, Review of *Studies in African Music*: 85.



*two drummers playing together in a cross rhythm, 3 against 2. Now stagger these so that they are out of phase. Now add two other drummers, and a singer, and clap accompaniment, all rhythmically at cross purposes and out of phase with one another<sup>31</sup>. ”*

Noted here is the ‘master-and-chaos’ rhythm, or contrapuntal rhythm, where non-synchronised rhythms play in unison. This creates a sense of ‘rhythmic chaos’, where the musical elements are so heavily syncopated that it becomes hard for listeners to distinguish the ‘master’ rhythm from the ‘chaos’ rhythms. Rhythmic complexity is a hallmark of both West African music, and the music of Steve Reich.

Reich focusses on repetition as one of the key components in his voice, utilising unusual instrument combinations to create a sonically dense collection of varied timbres, all playing competing rhythms and phasing in and out of the ‘master’ rhythm. For example, his work *Music for 18 Musicians*<sup>32</sup> consists of violin, cello, 2 clarinets (doubling bass clarinet), 4 female voices, 4 pianos, 3 marimbas, 2 xylophones, and a metallophone<sup>33</sup>. Each instrument is grouped with another, and then these groupings are phased against one another, whilst the three marimbas maintain the ‘master’ pulsing rhythms. Reich’s phasing works off the practice of elongation and additive composition techniques; musical phrases are slowly elongated, replacing rests with more notes, the phrases are slowly developed and lengthened, before returning to their original length. Beneath this elongation, sits the ‘floating’ chords that harmonically root Reich’s work, voiced by the marimbas and pianos. Exploring 11 chords in the opening and closing movements, sections I – XI are devoted to one of those 11 chords featured, creating a harmonic ‘limit’ on each movement and placing rhythmic and timbral interest at the centre of each movement. As the marimbas and pianos voice the tonic, the remaining instrumentation add harmonic interest through shifting interval colours, creating a false sense of harmonic shifting. Further interest is created in the way that Reich treats the timbral shifts, with the way that the contrapuntal rhythms phase the winds, voices, and strings in and out of time with the percussive instruments, and through this phasing Reich is able to create a trance-like effect as each movement ebbs and flows. Melodic musical

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<sup>31</sup> Ibid.

<sup>32</sup> Reich, Steve *Music for 18 Musicians* (1976), Synergy Vocals and Ensemble Intercontemporain (2014). Available at: <https://youtu.be/ApnbyNz9dE>

<sup>33</sup> Reich, Steve. *Music for 18 Musicians* composers’ notes, (1976). Available at: <https://www.boosey.com/cr/music/Steve-Reich-Music-for-18-Musicians/548>



motifs are evolved through the process of elongation, where the phrase is slowly grown through the replacement of rests with notes, maintaining the original time signature whilst expanding the motif.

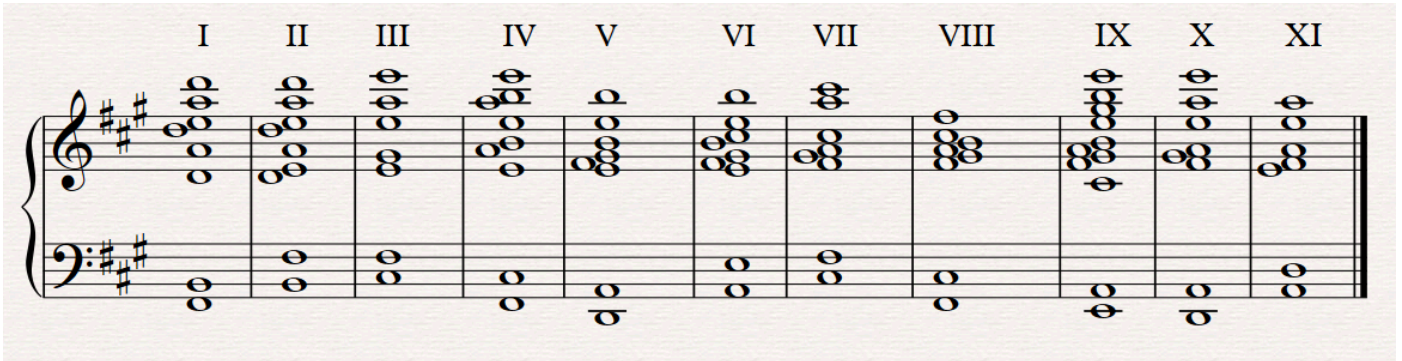


Figure 3.1: The 11 chords used in Reich's 'Music for 18 Musicians'.

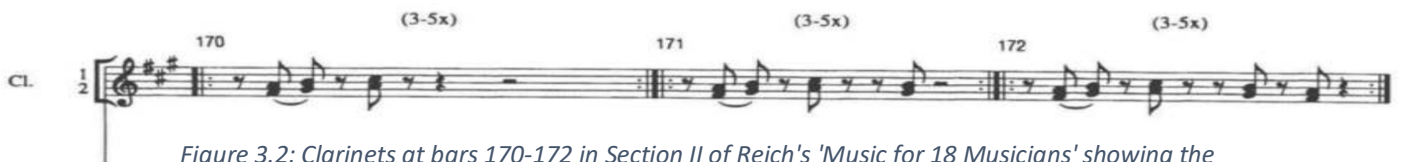


Figure 3.2: Clarinets at bars 170-172 in Section II of Reich's 'Music for 18 Musicians' showing the elongation phasing technique. The phrase shown here is slowly developed with each new repeated phrase, rests slowly replaced with notes.

Another piece of Reich's that shows the contrapuntal rhythm techniques in full force is his work *Drumming*:

*"Drumming begins with two drummers building up the basic rhythmic pattern of the entire piece from a single drum beat, played in a cycle of twelve beats with rests on all the other beats. Gradually additional drumbeats are substituted for the rests, one at a time, until the pattern is completed. The reduction process is simply the reverse where rests are gradually substituted for the beats, one at a time, until only a section leads to a build-up for the drums, marimbas, and glockenspiels simultaneously<sup>34</sup>."*

The build-up reduction technique operates in one of two ways: either by substituting notes with rests over a set period of time, or by replacing rests with notes over a set period of time, as Reich's *Music for 18 Musicians* does. As the instruments begin to phase out of time with one another, one line gradually begins to replace rests with beats, or beats with rests. In *Drumming*, where the sections aren't as varied in timbre as some of his other chamber works

<sup>34</sup> Reich, Steve. 'Drumming' *Composers Notes*, (1971). Available at: <https://www.boosey.com/cr/music/Steve-Reich-Drumming/1374>

are, this additive build-up or reduction technique shifts the focus between the rhythmic layers and creates interest. This phasing technique is what creates the hypnotic sound that is quintessentially Reich, as instruments phase in and out against the main rhythm, the audience's focus is pulled from one instrument to another, and so-on. Beneath the phasing and contrapuntal rhythms developing within Reich's works, is a straight pulse. The pulsing within Reich's works is the musical component that gives momentum to the works, never shifting in tempo but remaining consistent throughout.

Jon Hopkins and Nils Frahm both utilise a straight pulse within their works, stemming from their influences of electronic dance music. For example, Nils Frahm's piece 'Says'<sup>35</sup> features a simplistic rhythmic line across the synthetic instrumentation and piano, the pulse initially maintained in one synthesiser voice before the piano takes over at roughly the 7:15" mark, neither instrument straying from the beat. As noted by Alex Neyland:

*"The title [Spaces] is appropriate—there are acres of room in the gradual build of "Says", which stacks up beautifully [pulsed] arpeggiated synth lines that incrementally gain in intensity over its eight-minute runtime. The track's elegance is coupled with substantial anticipatory gestures, largely caused by an effective use of silence that triggers tantalizing thoughts about where Frahm might be heading<sup>36</sup>."*

Hopkins's creative pieces work in the same manner, an underlying pulse driving the rhythmic voices that slowly evolve over a set period of time. His work 'Open Eye Signal'<sup>37</sup> features a heartbeat-like pulse throughout, maintained by a synthesised bass line that slowly opens up from a swamp-like tone to a guttural, glitch-style bass<sup>38</sup> as the piece evolves. Hopkins's album *Immunity* forces audiences to listen to the rhythms (though simplistic) and how the overall sounds evolve as the piece grows:

*"The lack of vocals on Immunity feel in part responsible for creating this strong reaction in a large number of listeners. Devoid of that most instantaneous and human of responses to popular music, the listener is forced to have an internal*

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<sup>35</sup> Frahm, Nils. 'Says' from his album *Spaces*, (2013).

<sup>36</sup> Neyland, Nick. "Nils Frahm: Spaces", *Pitchfork*, January 15, 2014.  
<https://pitchfork.com/reviews/tracks/16524-nils-frahm-says/>

<sup>37</sup> Hopkins, Jon. *Open Eye Signal*, (London, Domino Recording Company, 2013).

<sup>38</sup> For an example of glitch house music, see Chappier's *Aiyra*. Chappier. *Aiyra* (Brazil, Prisma Techno, 2018). A link to the work can be found here: <https://www.youtube.com/watch?v=OMu5faFYDIIs>

*reaction over an external one. We cannot sing along to Immunity; we may nod and hum or tap our feet, but its cerebral and hypnotic rhythms reflect a desire to solve one of its most common themes; the harmony that arises from the discord of its rhythmic melodies and archaic stop-start programming<sup>39</sup>.*”

Comparatively, Philip Glass’s use of pulsing is generally less rigid, adopting a sense of shifting meter and pulse. Glass’s solo piano piece ‘Opening’<sup>40</sup> utilises a freer sense of pulsing, as noted by Chia-Ying Wu:

*“The hemiolas make each measure sound as it were in a time signature of 6/8 with two dotted quavers per measure, or a 2/3 time signature with two half notes<sup>41</sup>.”*

The opening phrase of Glass’s ‘Opening’ consists of quaver triplets in the right hand, offset with quavers in the left hand, creating a pulse that sounds as though it belongs to a time signature other than a 4/4 time. Gradually, the harmony opens up within the piece, and as it develops Glass seemingly shifts the pulse. Although the piece predominantly pulses in the left hand through quavers, the elaboration within the left hand within the piano is what creates a sense of shifting pulsing – emphasis placed on non-aligning pulses in co-existing layers throughout the evolution of the piece.

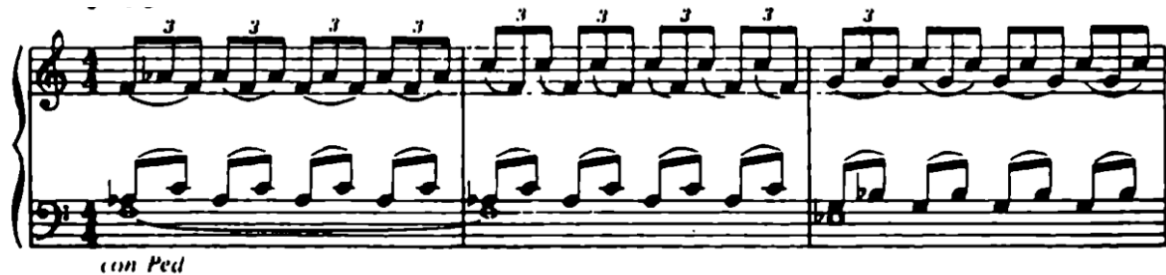


Figure 3.3: Excerpt from Philip Glass's 'Opening' showing polyrhythmic rhythms.

This sense of shifting pulse is not unusual in Glass’s works and can be linked back to his Chinese cosmology influences. The concept of *qi* is essentially the concept of life, of breath,

<sup>39</sup> Chocholko, Alex. “Immunity: How Jon Hopkins Changed Electronic Music in 2013”, *Medium*, May 25, 2018 <https://medium.com/@alexchocholko/immunity-how-jon-hopkins-changed-electronic-music-in-2013-7582dedb6216>

<sup>40</sup> Glass, Philip, “Opening” from ‘Glassworks’ (1981) studio recording for Sony Classical Records (1982). Available at: <https://www.youtube.com/watch?v=2vRbNehGB0>

<sup>41</sup> Wu, Chia-Ying. “The aesthetics minimalist music and a Schenkerian-oriented analysis of the first movement ‘Opening’ of Philip Glass’ ‘Glassworks’”: 31.

energy, and balance<sup>42</sup>. Within ‘Opening’, there is a sense of internal balance structurally, each section within the piece balanced between other sections, the opening and closing movements within the work acting as equal bookends to the piece as a whole, and each part designated for each hand balanced out against each other. Whilst rhythmically, it remains repetitive and simpler than Reich’s elaborate rhythms, Glass’s ‘Opening’ pulse is not metronomic, consisting of two pulse layers grouped as three against two within a single, slower metrical layer, creating a false sense of shifting pulse.

Glass’s work ‘Floe’ from his *Glassworks*<sup>43</sup> series is another example of sporadic pulsing present in Glass’s works. Essentially, there are two sections to the piece, one shorter theme which features the arpeggiated synthesiser, and one longer theme, which places the French horns in the foreground for the listener. Interest is created in the piece through the way that Glass treats rhythm and pulse, with polyphonic rhythmic phrases creating a sense of shift in pulse. The pulse shifts between the French horns in the slow sections, and can arguably be held by the synthesiser, winds, or horns in the faster sections.

Rhythm remains a focal point in a large portion of my portfolio, especially within *Concept:FUTURE*. I have drawn heavily from American minimalist composers Steve Reich and Philip Glass, adopting rhythmic techniques that have been outlined within this chapter, and incorporated them within *Concept:FUTURE*, especially the use of sporadic pulsed sections by Gerard Grisey, and the use of multiple layers of differing pulses unified by a single metre by Philip Glass.

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<sup>42</sup> Ho, Edward. “Aesthetic considerations in Understanding Chinese Literati Musical Behaviour”: 35-49.

<sup>43</sup> Glass, Philip. *Glassworks* (United States of America, CBS, 1981).

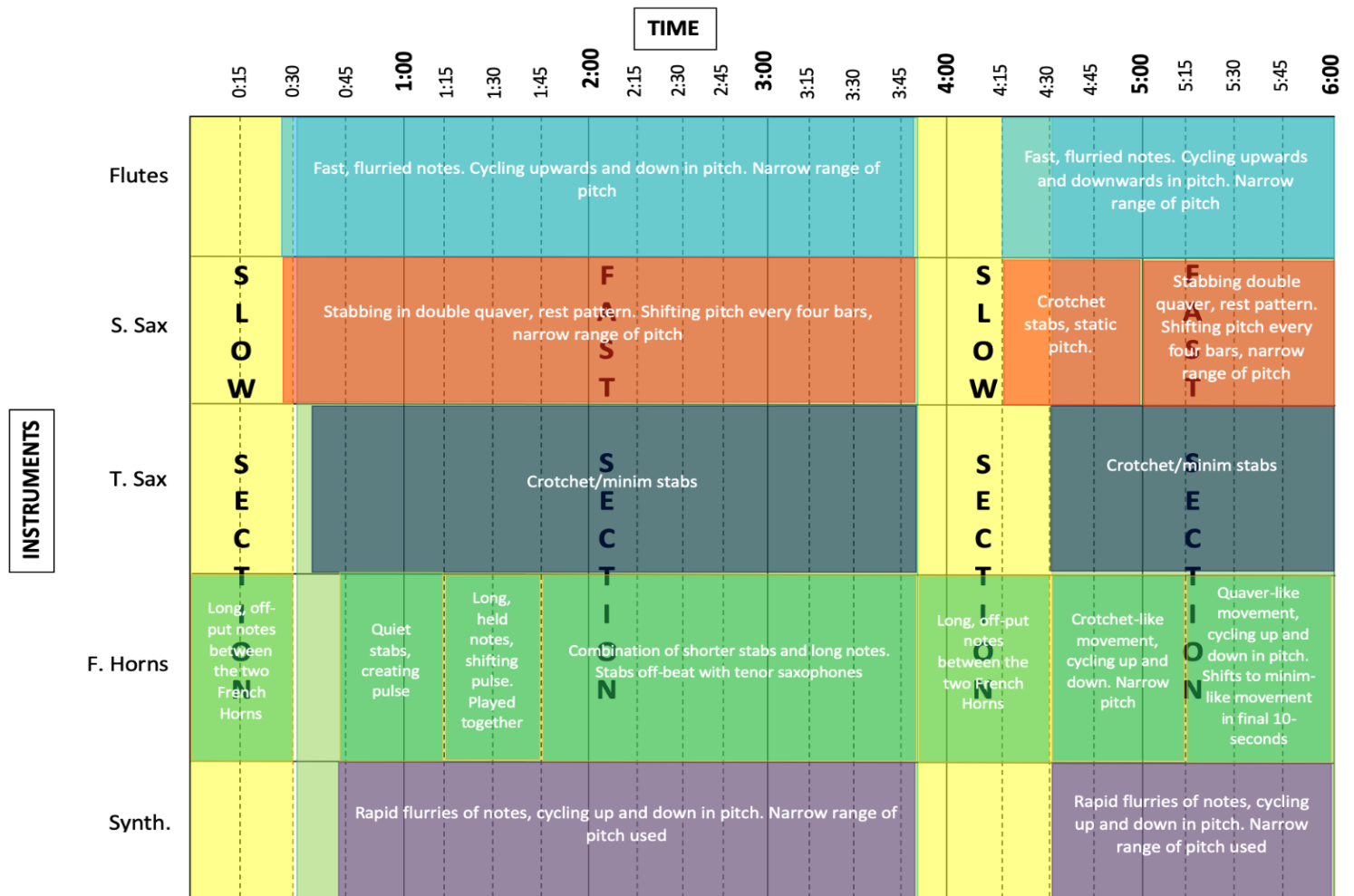


Figure 3.4: Visual graph of overall structure of Philip Glass's 'Floe' and what each instrument does in the sections.

## Harmonic Stasis and Inharmonicity

Harmonic stasis is a corner stone of American minimalist work, and harmonic ambiguity a corner stone to a large portion of Philip Glass's works<sup>44</sup>. Spectral music also adopts a sense of harmonic ambiguity in terms of traditional Western composition. Neither musical styles place emphasis on goal-oriented harmonic progression, diffusing the focus from harmony to other compositional elements.

<sup>44</sup> See literature such as Chia-Ying Wu's article *The Aesthetics of minimalist music and a Schenkerian-oriented analysis of the first movement of 'Opening' of Philip Glass' 'Glassworks'* for a detailed analysis of Glass's use of harmonic ambiguity in his creative works. Wu, Chia-Ying. The aesthetics of minimalist music and a Schenkerian-oriented analysis of the first movement 'Opening' of Philip Glass' 'Glassworks'.

Spectral composers explore harmony in such a way that differs from traditional Western compositional rules, where emphasis is not placed on lush harmonic progressions, but rather the exploration of the inner harmonics of an individual note through inharmonicity<sup>45</sup>. As noted by Robert Hasegawa:

*“A spectral chord can be described as a chord in which the pitches are selected such that their combination begins to match the spectral structure of a sound. When a pitch is well defined, the resulting spectrum is most often harmonic. The spectral chord’s notes then tend to merge into a single entity on the fringe between timbre and harmony<sup>46</sup>.”*

Harmonic progression does not hold the same level of importance as it tends to within traditional Western composition. That is to say, spectral works do not adopt traditional harmonic progression rules, where chords following an underlying progression on I-V-I or similar are used, but rather harmony stems from the frequencies that make up individual notes. Looking at Grisey’s work *Periodes*<sup>47</sup>, an explanation of inharmonicity within spectral music and the way in which spectral composers’ approach not only harmony but composition itself will be made.

*Periodes* is a work built entirely around the inner frequencies of an E1 note played at fortissimo on a trombone, written for an orchestra. As noted by Hasegawa:

*“The composer calculates the frequencies equivalent to the first harmonics of fundamental E1’s spectrum. He then seeks to transcribe them as accurately as possible while taking into account the interpreter’s options. In order to reconstruct certain spectral components in such a way that the note and the frequency coincide, the use of quarter tones and deviations of one-sixth of a tone is occasionally necessary<sup>48</sup>.”*

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<sup>45</sup> By inharmonicity, I am referring to Robert Hasegawa’s use of the term, which is to the degree that the frequencies deviate from the central frequency or note. See Hasegawa’s paper for further clarification. Hasegawa, Robert. “Gerard Grisey and the ‘nature’ of harmony” *Music Analysis* (2009) vol. 28, 349-371.

<sup>46</sup> Ibid: 348.

<sup>47</sup> Grisey, Gerard. *Periodes* (1974) Performed by Internationale Ensemble Modern Akademie (1974). Available at: <https://www.youtube.com/watch?v=Yljhvouhh2Q>

<sup>48</sup> Hasegawa, Robert. “Gerard Grisey and the ‘nature’ of harmony”: 356.

Within the work, each instrument explores the frequencies that are produced by a trombone when playing an E1 at a fortissimo level. The instruments are not written to enter or exit together, but each one entering and exiting at different times, recreating the way in which the frequencies themselves enter and exit when an E1 is sounded on a trombone naturally. Lacking any strong use of rhythm, or constant sense of pulsing, the piece provokes audiences to listen solely to the notes played by each instrument, and the sonic bedding that is created when they sound together. Conceptually, the piece also can be “viewed as a large-scale musical projection of the respiratory cycle<sup>49</sup>”:

*“The periods of inspiration... are translated musically through the gradual unfolding of tension that increases towards a climax, marked by a strong inharmonicity. Periods of expiration see the tension progressively release, and with it the inharmonicity returns [after the release]<sup>50</sup>.”*

With this, one can draw connections between French spectral composer Gerard Grisey and American minimalist composer Philip Glass, where both composers draw influence from the concept of breath or life-force<sup>51</sup>, an idea deeply embedded in Chinese cosmology. Grisey himself notes that the piece explores the theme of a heartbeat, noted in the preface of the score;

*“Another element essential to this piece is what I call the “soft periodicity”. Our heartbeat, our breathing, the rhythm of our walk and doubtless many other unknown rhythms (our nerve impulses, for example) are never as rigorously periodic as a clock; they vary around a time constant<sup>52</sup>.”*

Where Glass creates works with that utilise more traditional harmony, Grisey deviates and creates works where the harmony is disrupted, taking on a ‘sound mass’ role with non-traditional uses of harmonic exploration. Philip Glass’s use of harmony within his creative works is often static, with a false sense of harmonic progression. For example, his work ‘Floe’ sounds as though the piece is moving harmonically, however the piece itself is built

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<sup>49</sup> Ibid: 362.

<sup>50</sup> Ibid: 361.

<sup>51</sup> Hicks, Scott. “Glass: A Portrait of Philip in Twelve Parts” (2007).

<sup>52</sup> Noted here by the composer is the direct connection between Grisey and *qi*. Grisey, Gerard. Preface from *Periodes* (1974): 3.

around a series of keys: F minor chord, E flat major, and B flat. However, upon listening to the work, 'Floe' sounds as though it is exploring rich harmonic progressions across the 6-minute piece. Similarly, Steve Reich adopts this technique of a false sense of harmonic progression, audibly heard through his large ensemble pieces. This cyclic harmonic progression, where a false sense of harmonic movement is made, is quintessential to the American minimalism genre.

Similarly, ambient artists Triosk and GoGo Penguin work with circular harmony. Unlike American minimalist composers Steve Reich or Philip Glass, whose works adopt a false sense of harmonic progression, Triosk and GoGo Penguin's works do harmonically shift. Looking at GoGo Penguin's piece "Control Shift"<sup>53</sup> there are audible hallmarks of American minimalist influences. From 4:20-4:50 the piano and electric bass guitar cycle through the harmonic progression underlying the entire piece, similarly to how Steve Reich cycles through the harmonic progression in the opening and closing movements of his large ensemble work *Music for 18 Musicians*<sup>54</sup>. "Control Shift" is written in the key of Bb, with D being the main tonal centre for the entire piece. In the section where it cycles, however, the players shift predominantly between Bb and C, with pass-over chords that signify the end of each 4-bar phrase. The harmonic movement throughout the piece is relatively centred around this progression, although it sounds as though it is cycling through a progression which gives an illusion of movement, similar to Glass's *Floe*.



Figure 3.5: Harmonic progression played by the bass guitar in GoGo Penguin's 'Control Shift'. As shown, the cycle consists of three 4-bar phrases where the bass alternates between Bb and C, and ends with a pass-over bar. This is then repeated, the pass-over notes changed, and repeated once more before shifting into a Bb drone and returning to the fast-paced rhythmic progression.

Electronic artist Jon Hopkins also works with harmony in a similar nature. Hopkins' piece 'Singularity' is a prime example of his harmonic treatment in composition. Harmonically, the piece revolves around a 5-chord movement over 6:30, opening and closing with an Eb drone. Hopkins draws heavily from the electronic music scene, where harmony is

<sup>53</sup> GoGo Penguin. "Control Shift", *Ocean in a Raindrop*. (London, Blue Note Records, 2019). Available at: <https://www.youtube.com/watch?v=0v11mlHCD-k>

<sup>54</sup> Reich, Steve *Music for 18 Musicians* (1976), Synergy Vocals and Ensemble Intercontemporain (2014). Available at: <https://youtu.be/ApnbyNz9dE>



not the central focus of composition, but rhythm. Through the use of dronal harmony, and limited, repetitive harmonic cycles, the connections between Hopkins' works and that of American minimalist composers can be made.

The treatment of harmony as noted within this chapter deeply influences my own works, where harmonic progression is limited and often ambiguous, and plays a minor role in the overall creation of each work within my portfolio. I have heavily drawn from American minimalists, French spectralists, electronic, and ambient composers in the creation of each component of my portfolio, and the treatment of harmony as a minor role is evident through the creative works within my portfolio, which will be further discussed in the following chapter.

## Extended Techniques and Improvisation

The lines between the various subgenres within jazz and ambient music are often blurred, and the distinction between the crossovers within the existing subgenres are beyond the scope of this project. In order for succinctness, bass virtuosos Stanley Clarke, Marcus Miller, and Victor Wooten will be referred to as jazz musicians, and ensembles such as GoGo Penguin and Triosk as ambient performers, although these definitions are in no measure definitive.

Stanley Clarke, Marcus Miler, and Victor Wooten are three of the most well-known jazz bass guitarists of the twenty-first century. Each performer is well-known for their use of various extended techniques that aid in their mission to bring the bass guitar to the forefront of jazz ensembles. Individually, their works have all utilised the bass guitar as a rhythmic, harmonic, and melodic instrument, rejecting the stereotypic role of 'rhythm keeper'. Together, the three virtuosos have written and performed their title album *Thunder*<sup>55</sup> under the name S. M. V, where they collaborated in writing 13 tracks that all heavily featured the bass guitar as the primary focus. This rejection of role stereotypes has been pivotal in all creative works within my portfolio, where I have deliberately placed the bass as the central interest. For *Concept:FUTURE*, this meant a bass guitar track/s placed within the centre of a mix, sitting above the bedding and equal with the fragmented voice tracks. However, for my notated works this meant scoring for solo bass, or duet bass, giving the role of both 'rhythm

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<sup>55</sup> S. M. V. "Thunder" (Ohio, Heads up, 2008). <https://www.youtube.com/watch?v=nOyQtoz3II4>

keeper' and melodic line to the bass to maintain. In all works, the role that I have given to the bass is similar to the way in which the bass dominates S. M. V's works.

"Thunder"<sup>56</sup> is one of S. M. V's most prolific tracks, showcasing each performer equally and a vast majority of extended techniques available to the bass guitar player. Timbral interest is pivotal to the piece, each bass guitar adopting a unique tone and various extended techniques to differentiate the three performers lines from one-another. Essentially, the piece is built upon Stanley Clarke's dyads, voiced with an electronic synthesiser-sounding pedal to create a gritty tone, Marcus Miller often doubling the rhythm via ghost notes that are then slapped and popped to create a more rhythmic and less pitched sound, and Victor Wooten microtonally bending notes and maintaining a more lyrical voice above the rhythmic bedding. Structurally, the piece is built upon two major sections, A and B, where the main 'hook' of the piece features, and the solos section. Each section change is defined with a coda-like section, where the chords underpinning the work is voiced and signifies a change to

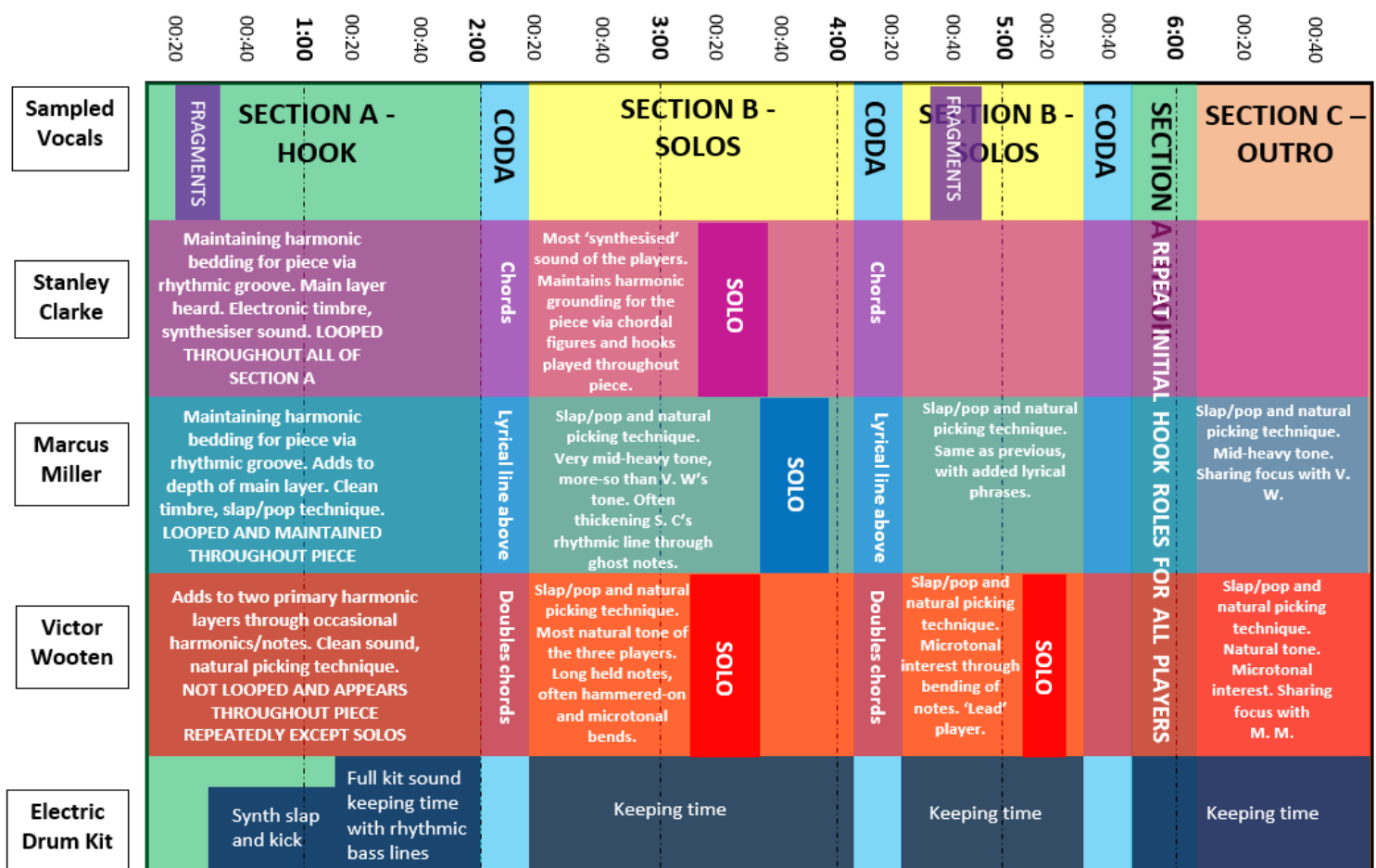


Figure 3.6: A visual graph breaking down the structure of S. M. V's piece 'Thunder', also noting the timbral differences between performers, and extended techniques utilised by each performer.

<sup>56</sup> Ibid

the next section. The performers take turns in soloing within section B, and each performer utilises an array of extended techniques to create interest within their lyrical solos. Through the use of available extended techniques on the bass guitar, each performer is able to vary their tone in such a way that their bass is audibly distinguishable from the other performers. In addition to performance techniques, each bass player is also running through effects pedals, further varying the timbres.

Triosk are also concerned with timbre development to create interest within their works. Triosk consists of piano, double bass, and drums, although their collaborative album with electronic artist Jan Jelinek *1+3+1* is an album where connections between my own works and my influences can be made clearly. As reviewer Nick Sylvester states:

*“1+3+1 is not minimalist jazz; it is loop-based jazz, influenced and produced by a minimalist composer, and then given to a jazz trio with post-rock tendencies<sup>57</sup>.”*

The track ‘Neckless<sup>58</sup>’ is one such example of loop-based-jazz-meets-electronic-minimalism, where timbral interest sits solely with the electronic bedding development. Harmonic progression remains static, rhythm remains consistent, and generally there is a sense of repetition across all acoustic instruments. However, the development of the electronic bedding within the piece is what furthers interest, with its swampy drone-like tone ebbing-and-flowing beneath the other sound sources, slowly increasing in volume with the development of the piece. This is similar to my own series *Concept:FUTURE*, where the electronic bedding ebbs-and-flows, dictating the overall progression of the piece<sup>59</sup>.

## Aleatory

Aleatoric elements are utilised throughout my notated compositions within my portfolio, used as a means to allow for a sense of freedom for the performers. Through the

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<sup>57</sup> Sylvester, Nick. Triosk meets Jan Jelinek: 1+3+1. *Pitchfork*, February 5, 2004. Accessed from: <https://pitchfork.com/reviews/albums/8251-131/> This article further notes the compositional practice, where Jelinek would create an electric bedding of sorts and send it to Triosk, who would then collaborate in guided improvisations which would then be recorded and sent back to Jelinek to manipulate, mix, and then master. The entirety of this album was created on this collaborative process.

<sup>58</sup> Triosk & Jan Jelinek. “Neckless” (Berlin, ~scape Records, 2003). A link to the work can be found here: <https://www.youtube.com/watch?v=EjCZpBq-HFI>

<sup>59</sup> This will be further discussed in the following chapter, where each movement within *Concept:FUTURE* will be explored in more depth.

use of aleatory, notated compositions inherently allow for more freedom in pitch selection and timing for the performer, introducing an element of guided improvisation into traditional notation. That is not to say that aleatoric elements in notated compositions completely removes control over the final product produced from the composer, however, as Gerard Grisey proves.

The image shows a musical score for Gerard Grisey's *Periode*. The score is written for a large ensemble: Flute (Fl.), Clarinet (Cl.), Violoncello (Vno.), Viola (Vla.), Violin (Vc.), and Contrabass (Cb.). The notation is aleatoric, meaning it does not use traditional time signatures. Instead, it uses time-based elements indicated by durations at the top of the staves: 6", 2", 3", 3", and 2". The music is written in a way that allows for guided improvisation, with various dynamics like *pp* (pianissimo) and *mf* (mezzo-forte) indicated. A handwritten note in a box says: "Nota : Appuyer toujours davantage le ré que ses harmoniques" (Note: Always press the D note more than its harmonics). The score is written in a way that allows for guided improvisation, with various dynamics like *pp* (pianissimo) and *mf* (mezzo-forte) indicated. The score is written in a way that allows for guided improvisation, with various dynamics like *pp* (pianissimo) and *mf* (mezzo-forte) indicated.

Figure 3.7: Excerpt from Gerard Grisey's *Periode*, showing the aleatoric time-based elements and lack of traditional time signatures. This score was accessed through YouTube: <https://www.youtube.com/watch?v=Yljhvouhh2Q>

Gerard Grisey adopts aleatoric elements into his notated works, opting to exclude the traditional bar system within staves for time signature-based cell-like notation, or a combination of both traditional notation and aleatoric elements like those just described. His works aren't composed to a set time signature over a constant tempo, but rather unusual time signatures to allow for certain phrases or lengths of silence to sound. By opting to use shifting time signatures rather than time-based cells, Grisey is able to be stricter about the length of phrases, with little room for error. For example, Grisey's piece *Talea* opens with a single 2/4

bar followed by a 17/4 bar of silence across the ensemble, a strict section of pure silence across the ensemble that is easier to follow for performers than a time-based cell would be.

Within my own portfolio, I use aleatoric elements predominantly within my notated compositions *Grain* and *Dissonance*. Where Grisey adopted time signature-based cells, I have opted to use time-based cells, alongside headless notation allowing the performers to choose the pitches played. A further analysis of aleatoric elements used within my portfolio will be undertaken in the following chapter.

By borrowing compositional and performative techniques, such as those outlined above, the works within my portfolio have forged connections between the influencing musical styles. None of the creative works intend to create ‘pure’ replicas of these musical styles, but rather a new hybrid territory<sup>60</sup> that is authentic to my eclectic interests.

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<sup>60</sup> Nuss, Steven. “Hearing “Japanese”, Hearing Takemitsu”: 39-44

## Chapter Four: Analysis

This chapter is concerned with exploring the folio aspect of this research project. My creative works utilise a practice-based research approach, in which the compositions stem from my personal iterative cyclic web<sup>61</sup> consisting of improvisation, notation, and reflection in and on practice<sup>62</sup>. This chapter will discuss how these works operate, and the shared compositional characteristics used throughout.

The portfolio of this project consists of three movements of an improvisational series titled *Concept:FUTURE*, and two scored works titled *Dissonance* and *Grain*. These creative works explore the parallels between American minimalism and French spectralism, and the incorporation of my compositional voice that stems from the bass guitar. *Concept:FUTURE* also deals with the biggest issue that we as a society are facing currently, the issue of the climate crisis.

Embedded within all of the creative works is also the influences from Chinese cosmology, *qi*, and the ideas of breath, pulse, and balance. The eclectic pool of interests has allowed for the creation of an authentically new ‘hybrid territory<sup>63</sup>’ that is applicable to this research project and suggests prototypes for further hybrid creativity. The interconnections between each musical genre have been made through a combination of several analyses of pre-existing works, and through the creation of new improvised and notated compositions.

### *Concept:FUTURE*

The basis of my improvisational series *Concept:FUTURE* was the climate crisis that is impacting all of society, an issue that has deeply impacted my entire life, especially my childhood growing up in rural South Australia. It is important to note that the approach of this series is not political, but rather an interpretation of nature as an aesthetic for shaping sound. The series began with a deep survey of significant speeches discussing the climate crisis, which were then incorporated into each movement as a ‘vocal’ track – the equally primary

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<sup>61</sup> Smith, Hazel and Roger Dean, ‘Introduction’ in Hazel Smith and Roger Dean (eds), *Practice-Led Research, Research-Led Practice in the Creative Arts* (Edinburgh: Edinburgh University Press, 2009): 19-25.

<sup>62</sup> Schön, Donald A. ‘Introduction’ in Donald A. Schön *The Reflective Practitioner: How Professionals Think in Action* (New York: Basic Books, 1983): 31-45.

<sup>63</sup> *Ibid*: 39-44.

focus point for the listener. The speeches are then fragmented to create a ‘backing’ vocal track, and larger components of the speeches are also included as ‘feature’ vocal tracks. The main differences between the ‘backing’ and the ‘feature’ vocal tracks is the amount of electronic manipulation. The ‘backing’ vocal tracks are heavily EQ-ed, mirroring the EQ found in early radio speakers with minimal low frequencies and utilise a dense reverb effect (which increases as the series progresses). Comparatively, the ‘feature’ vocal tracks use the same EQ settings placed on the ‘backing’ vocal tracks, however the reverb is much smaller, ensuring the spoken words remain audible.

Sharing equal focus in the series, is the bass guitar tracks. Within each movement, the bass guitar is processed via effects to alter the timbre of the instrument, from a subtle reverb within “Green” to slight distortion and heavy reverberance in ‘Black’. As the series progresses, the amount of bass guitar tracks also increases, creating a denser texture of drones, harmonics, and various other techniques to create further interest in the bass guitar. The bass guitar tracks in each movement feature a combination of various extended techniques, ranging from truss rod bends<sup>64</sup> in “Green”, to hammer-ons and tapping<sup>65</sup> in “Blue”, to some slapping and popping<sup>66</sup> in “Black”. These techniques have been utilised as a means of varying the timbre of the bass guitar on each track, creating a subtle colour change and further interest.

Beneath the bass guitar and vocal tracks, is a sporadic pulse. The pulse is held by a combination of the synthesiser tracks, and the percussive tracks. Through a combination of multiple percussive tracks, the percussive pulsing takes on a contrapuntal rhythm, similar to

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<sup>64</sup> A truss rod bend is achieved by pulling from the headstock on the bass guitar backwards and forwards gently, which pulls the truss rod within the neck of the bass guitar and then changes the intonation of the note being played. Essentially, it works in the same manner that a whammy bar on a guitar does, by altering the tension placed on the truss rod of the instrument slightly, which then alters the pitch of the note/s being played.

<sup>65</sup> These techniques are achieved rather simply, by just ‘tapping’ the desired note on the fretboard with the hand that would usually be used to strum the strings with. For example, as a right-handed bass player, rather than using my left hand to press notes on the fretboard and my right to strum the strings, I would instead ‘tap’ these notes out with my right hand on the fretboard, leaving my left hand to then sound a drone note out or simply not play. An example of this can be seen here. Bedrosian, Aram. “A Dark Light” (Canada, Aram Bedrosian, 2017). [https://www.youtube.com/watch?v=ko5LE9DBtC0&list=RDEMBtSGV-zXBQssucuYdXdyNQ&start\\_radio=1](https://www.youtube.com/watch?v=ko5LE9DBtC0&list=RDEMBtSGV-zXBQssucuYdXdyNQ&start_radio=1) 0:50-1:00.

<sup>66</sup> Slapping and popping are two of the most commonly used techniques on the electric bass guitar. Using the hand dedicated to strumming, a slap is achieved by ‘flicking’ the wrist and letting the thumb slap on the string, creating a much more percussive sound than a normal strum would. A pop works by using one of the remaining fingers (generally index or middle) to then ‘pluck’ the string aggressively, wrapping around the bottom of the string and pulling up, creating a sharp ‘pop’ note. Generally, slapping and popping is used to create a timbral shift in the bass line, incorporating a percussive element into the bass figures. Two examples of this can be seen here: Miller, Marcus. “Power” Live at Festival Jazz Lugano (2010) <https://www.youtube.com/watch?v=XqTCAZK9rzY> 00:12- 00:30; and Graham, Larry. “Hair” Live at North Sea Jazz Festival (2016) <https://www.youtube.com/watch?v=mgxLlfkDdzc> 00:00-00:30.



the contrapuntal rhythmic effect present in Steve Reich's works. With the addition of synthesiser tracks with their own slower and longer pulses, the overall pulse of each movement is further elongated and shifted, creating a rhythmic interest that is unique between each movement within *Concept:FUTURE*.

Structurally, each movement has internal balance between the opening and closing phrases. The lyrical passages of the bass guitar are created around micro breath ideas, these passages acting as musical conversations, where pauses and breaths must be taken. These ideas of breath and balance stem from the influence of *qi*. As noted by Edward Ho:

*“The most important consideration of the technique of performance, then, is not the question of finger dexterity or any other technical aspect, but the question of how qi is manipulated. Qi in musical performance entails breathing, and breathing is essential in shaping the line... Qi is the creative force that begins, sustains and completes a work of art, without which there is no life<sup>67</sup>.”*

This is incorporated through lyrical passages improvised on the bass guitar throughout each movement. The passages played are not designed to be sonically demanding, or highly virtuosic in the monolithic manner that S.M.V perform, but rather delicate in nature, more subtle and gentle in their presence. However, as the series develops, the pieces become grittier. Starting with “Green”, the most natural and texturally softest of the series, and ending with “Black”, the most heavily electronically manipulated and texturally harshest of the three movements.

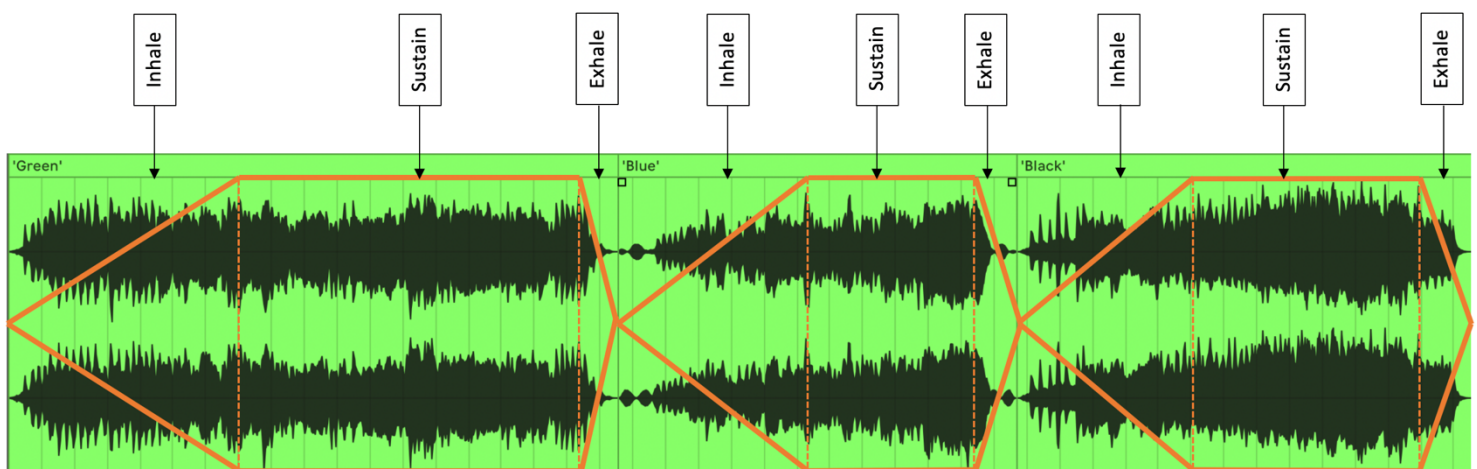


Figure 4.1: The macro-scale breathing cycles across the three movements in *Concept:FUTURE*.

<sup>67</sup> Ho, Edward. “Aesthetic considerations in Understanding Chinese Literati Musical Behaviour”: 38



Compositionally, each movement within *Concept:FUTURE* begins with the creation of the fragmented vocal tracks. Various speeches are segmented and then digitally manipulated to sound slightly grainy through an EQ setting where the lower frequencies are pulled out completely, emulating the sound heard with early stage speaker systems. After the vocal tracks, the soundscape bedding is created and placed in the desired sonic space – panned as largely as allowed in stereo format. Following this, is the synthesiser and dronal tracks, then the percussive tracks. Once these have all been added into the mix, the preliminary mixing begins. Once all of the bedding is mixed, the bass track is then improvised and recorded, and a second mix is undertaken. Each movement is mixed several times, and then the final mastering is completed through a larger stereo system. Overall, the sound is deliberately paired back to place emphasis on the shifting textures and sound envelopes.

## “Green”

“Green” is the first movement in *Concept:FUTURE*, and is also the most texturally sparse, consisting of six grouped instrument voices; the soundscape bedding, the dronal bedding, synthesised flute tracks, percussion tracks, vocal tracks, and then solo bass guitar track. Focally, the piece is centred around the bass guitar and vocal tracks, which consist of fragmented sections of various famous speeches on climate change, such as Greta Thunberg’s TEDx talk<sup>68</sup>, Leonardo DiCaprio’s United Nations speech<sup>69</sup>, and Severn Cullis-Suzuki’s United Nations conference on Environment and Development<sup>70</sup>. The vocal tracks have been digitally manipulated, with a heavy reverb, an EQ similar to what can be found in early speaker boxes (where the bass is pulled out completely, and the sound is slightly grainy). This is then reflected in the bass guitar track, with a heavy reverb and echo to create a larger sound that compliments the digital manipulation on the vocal tracks. Timbrally, it also creates interest in the bass guitar voice, no longer a static, timbrally ‘thin’ or naturally sounding tone, but an ethereal ‘other’ timbre unusual to the instrument.

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<sup>68</sup> Thunberg, Greta. “School strike for climate – save the world by changing the rules” *TedxStockholm*, December, 2018. A link to the speech can be found here: <https://www.youtube.com/watch?v=EAmUUEsN9A&t=>

<sup>69</sup> DiCaprio, Leonardo. “UN Messenger of Peace” *Climate Summit*, September, 2014. A link to the full speech can be found here: <https://www.youtube.com/watch?v=qkZ13cVUbJs>

<sup>70</sup> Cullis-Suzuki, Severn. “The Girl Who Silenced the World for Five Minutes” *Earth Summit Rio De Janeiro*, June, 1992. A link to the speech can be found here: <https://www.youtube.com/watch?v=oJJGuIZVfLM&t=>

The field of sound on “Green” is large, and each grouped instrument occupies its own area within the sonic field. Some tracks, such as the synthesised drone bedding, also utilise a small amount of shifting panning, creating a sense of movement for the listener<sup>71</sup>. Although texturally, the piece is thin, through the use of a combination of wide and narrow stereo panning, the track is made to sound texturally thicker. Each grouped track is designed to work with other tracks, creating a sonic ecosystem similar to how a natural ecosystem works. Each track is assigned a specific task, but together they work to create a lush ambient soundscape.

By opening up the sound field to an extremely wide panning, each individual element of the piece, whether it be the subtle flutes or the lush forest soundscape, is able to subtly evolve as the piece progresses. By designating the soundscape bedding and drone bedding the largest sonic spaces, it creates a ‘grounding’ element for the listener, as the other elements enter and leave.

The driving pulse within “Green” is maintained subtly through the percussion tracks, which as the four tracks enter and leave individually, creates a shifting pulse. Conceptually, this is designed to mimic a heartbeat, constant and sporadic in nature. This use of subtle pulse stems from my influences in American minimalism, and French spectralism, notably Philip Glass and Gerard Grisey who both adopt subtle pulsing and non-metronomical pulsing.

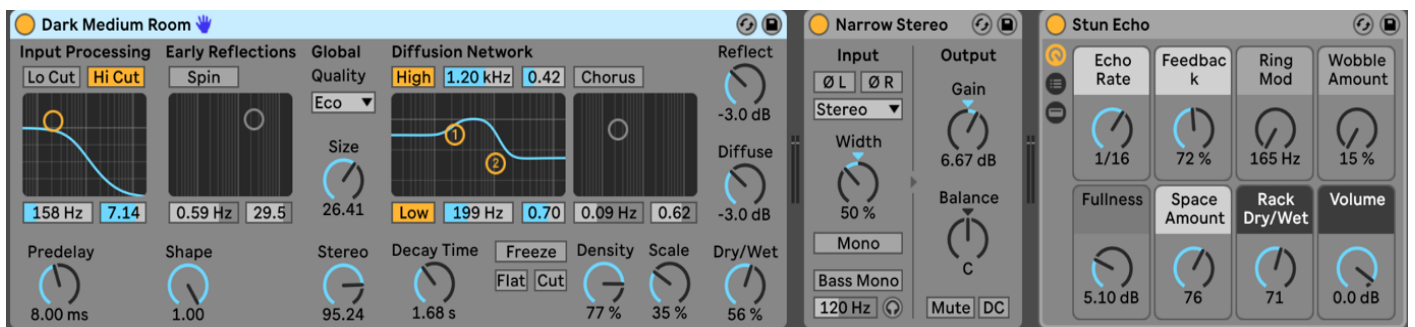


Figure 4.2: Timbral effects on bass guitar track in the movement “Green”.

<sup>71</sup> This effect is best heard through headphones, as true stereo is heard best through specific spacing parameters between the listener and the sound source.

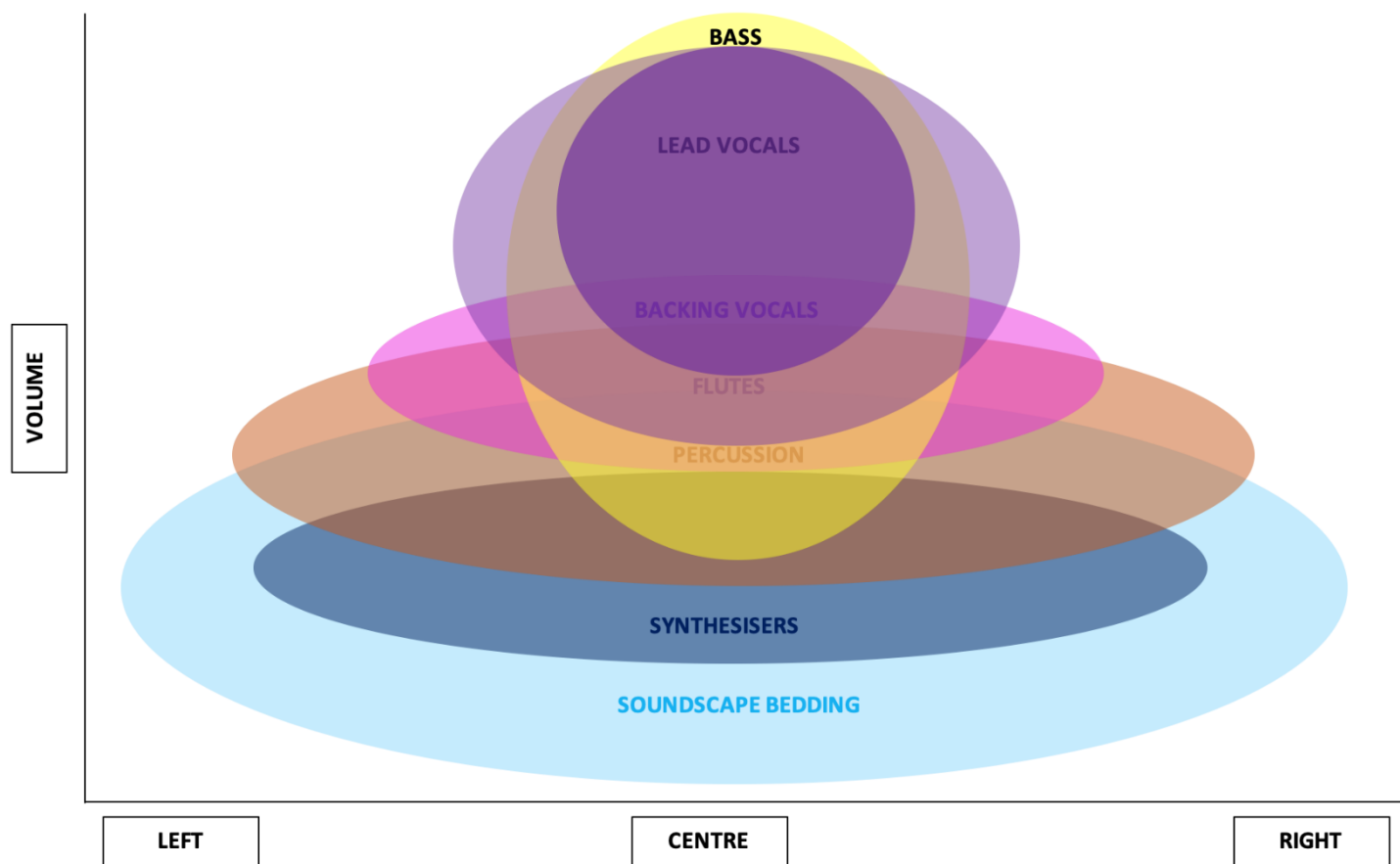


Figure 4.3: Visual graph of the sonic field of “Green”, showing the panning of each grouped instrument.

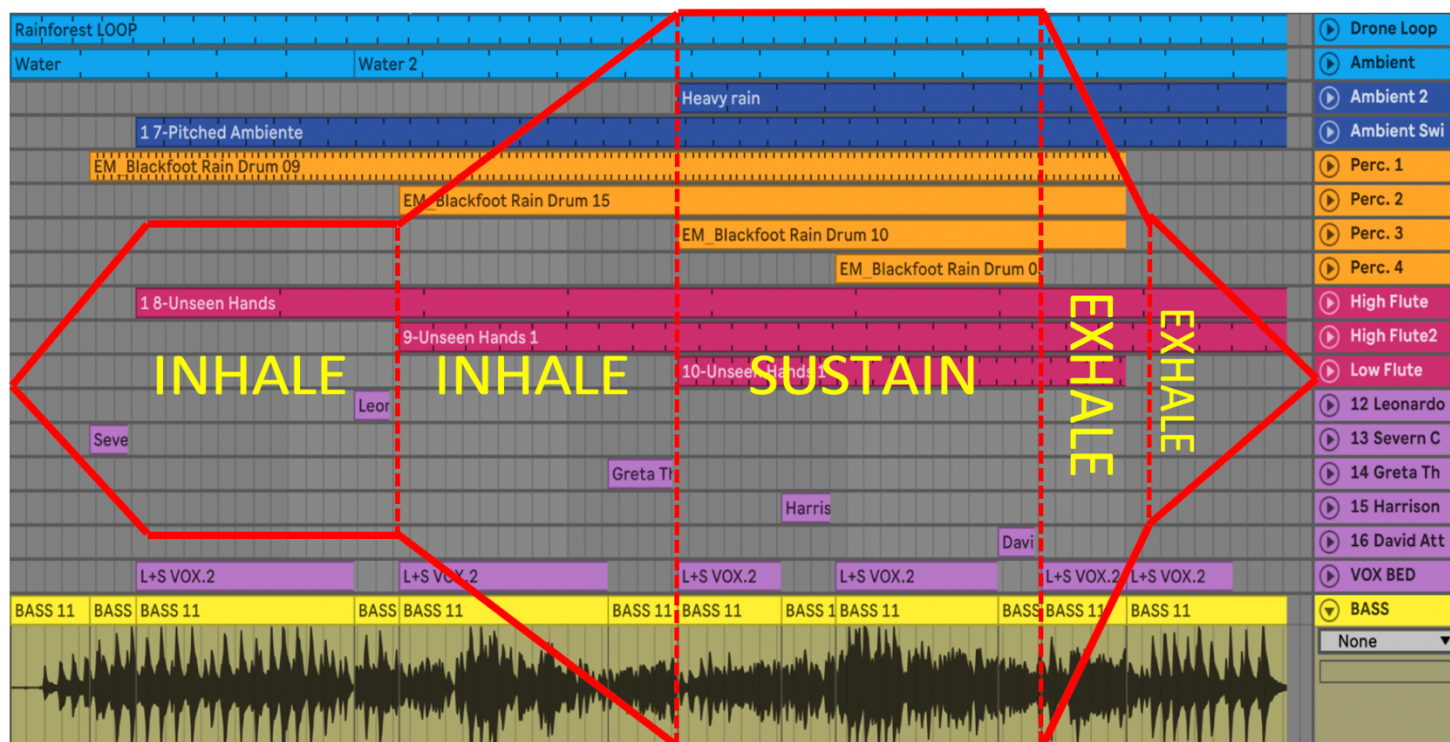


Figure 4.4: A snapshot of “Green”, showing the progression of the piece, interplay between instruments, and micro-scale breathing cycle in the movement.

## “Blue”

“Blue” is the interlude track of the series, the shortest and most concise of the three movements with a runtime of 9 and a half minutes. “Blue” was written to join the opening and closing movements “Green” and “Black”, a sense of connection between. Once again, this track consists of a soundscape bedding (of rain rather than birds), a more prominent synthesiser bedding, a drone track, four drum tracks, vocal tracks, two bass guitar tracks, and also a white noise track. The white noise track consists of three white noise tracks combined, each with a different EQ on them to bring out different frequencies. This appears twice in the track, at the opening and closing of the movement, creating a balance between the start and conclusion of the piece. The white noise sound is also a musical reference to the spectralism influences, a subtle nod to the exploration of frequencies that many spectralist composers are concerned with.

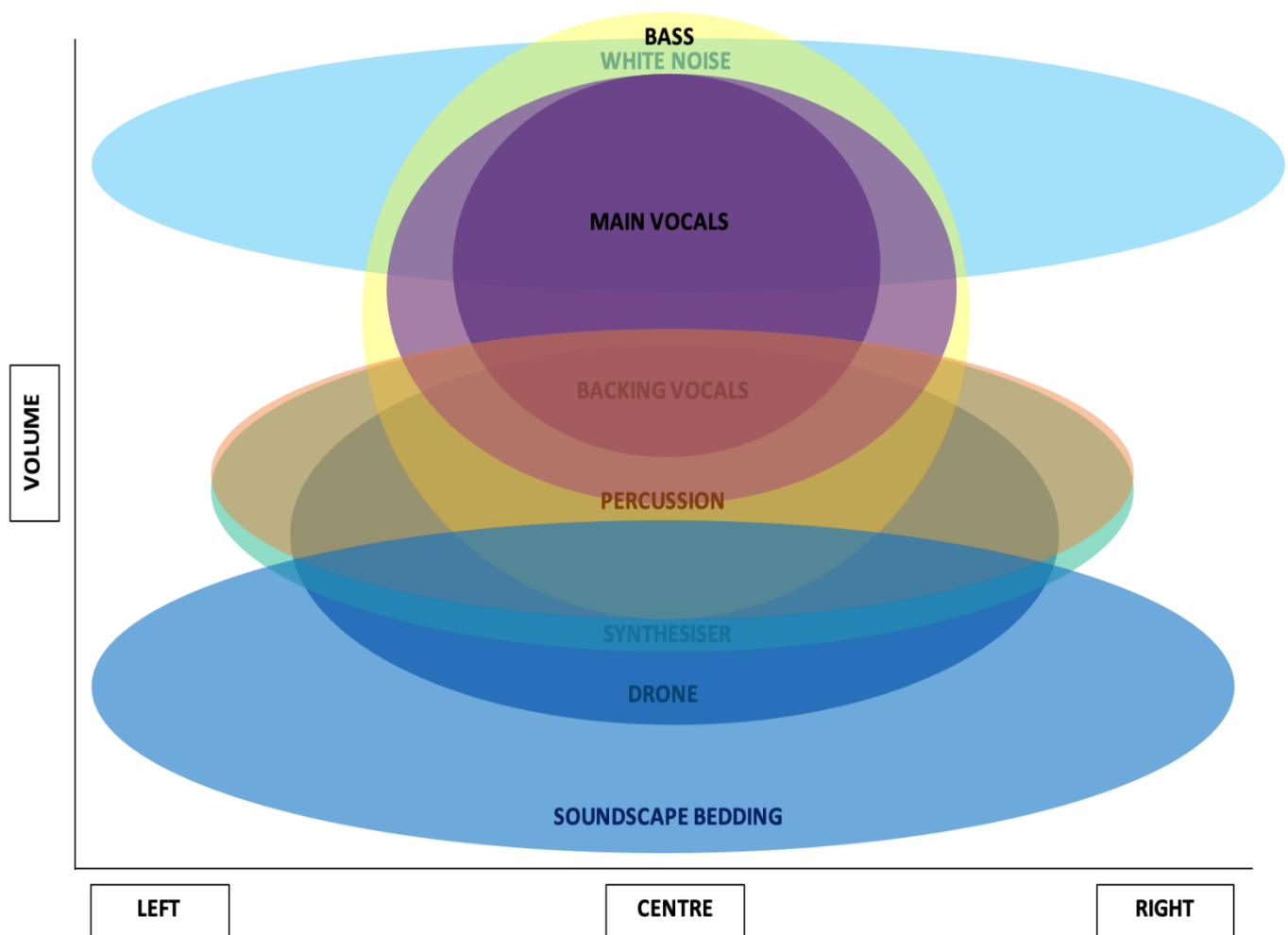


Figure 4.5: Visual graph of the sonic field of “Blue”, showing the panning of each grouped instrument.

The bass guitar tracks are more heavily digitally manipulated, with a larger reverb and a heavy ping-pong delay on both tracks, with an even larger reverb saturation and heavier ping-pong delay on the second bass track. The result of these effects is an ethereal sound, space-like in nature. As the piece progresses, the bass tracks become grittier in nature, more electronic and less natural, leading into the timbre of the bass in the third movement, “Black”.

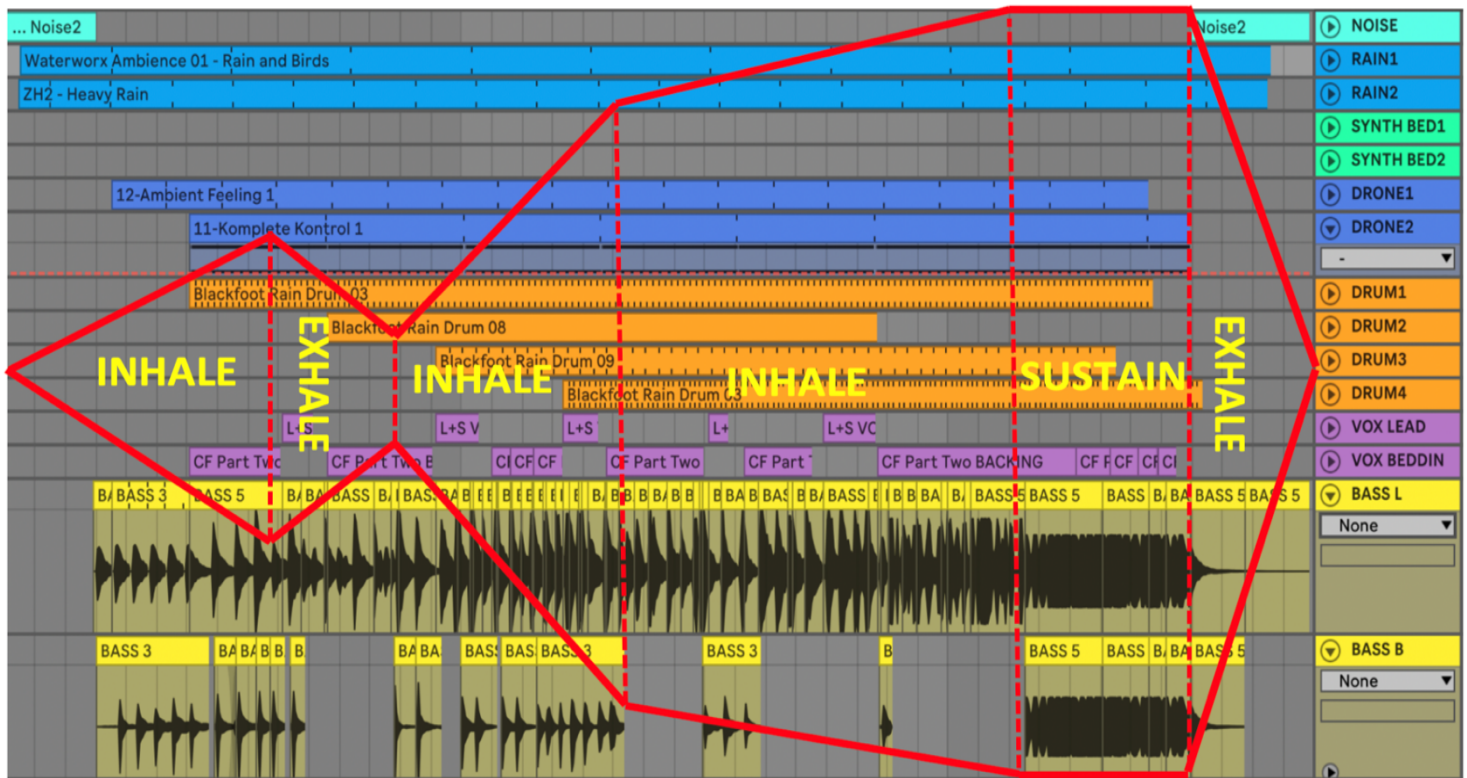


Figure 4.6: A snapshot of “Blue”, showing the progression of the piece and interplay between instruments and micro-scale breathing cycle in the movement.

## “Black”

“Black” is the final instalment in my series *Concept:FUTURE*, and is sonically the ‘darkest’ sounding, and the most texturally dense of the series. The bedding for this piece is a thunderstorm, with four heavy rain tracks (each with intermittent growls of thunder), and a track dedicated solely to a large clap of thunder that sounds sporadically. There are three ambient bedding tracks, each sounding a hauntingly eerie synthesisers that slowly swell with and against each other in the same manner as a breath operates. Also, there are four synthesiser tracks with subtle pulsing and more electronic swells, four percussion tracks



utilising more metallic sounds than the other movements of *Concept:FUTURE* used, two vocal tracks, and four bass guitar tracks.

The pulse within this movement is more pronounced than “Green” or “Blue” and is more texturally dense. The layers within “Black” are present for longer periods of time and are able to slowly evolve and interplay with each other more than any other movement allows. The fragmented speeches included are angrier than any other movement, and dramatically ends with a segment from Greta Thunberg’s emotional “how dare you” speech<sup>72</sup>. As this is the most texturally dense piece of the series, the panning of “Black” is the densest, and utilises small elements of automated shifted panning, creating a sense of shifting sound as the bedding expands. This effect is most audible in the percussion tracks, where each percussive sound rapidly shifts around the listeners head<sup>73</sup>.

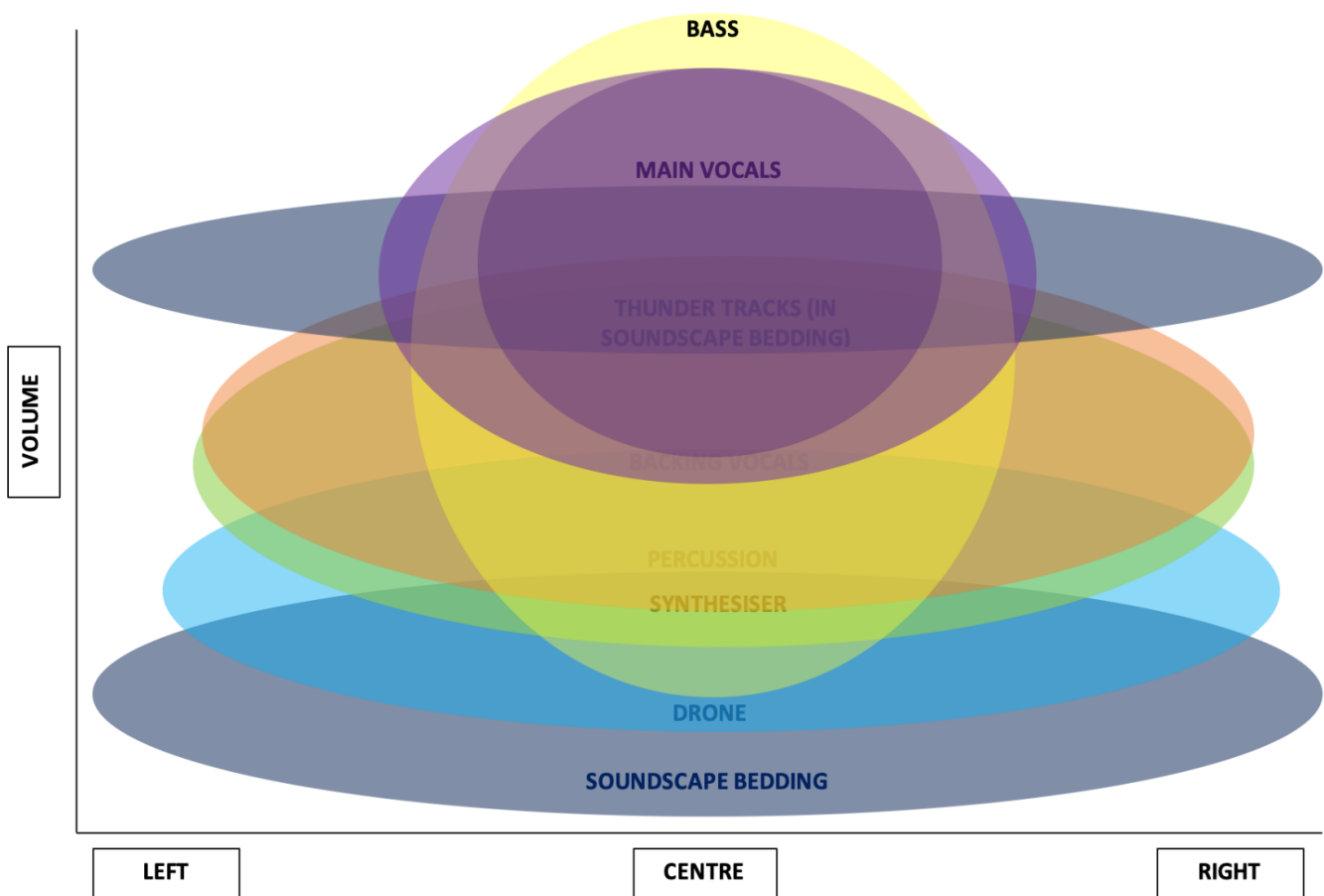


Figure 4.6: Visual graph of the sonic field of “Black”, showing the panning of each grouped instrument.

<sup>72</sup> Thunberg, Greta. “How Dare You”, *UN Climate Action Summit, New York*, September 23, 2019. A link to the speech can be found here: <https://www.youtube.com/watch?v=oJJGuIZVfLM&t=>

<sup>73</sup> As noted previously, this effect is best heard through headphones as stereo mixing relies on specific parameters between listeners and speakers.

The timbre of the bass guitar tracks in “Black” is the most unnatural of the whole series, and utilises a dense reverb, a strong slap-back echo, a shimmering echo modulation, a subtle compressor, and a low-pass EQ to enhance the low-D drone slaps.

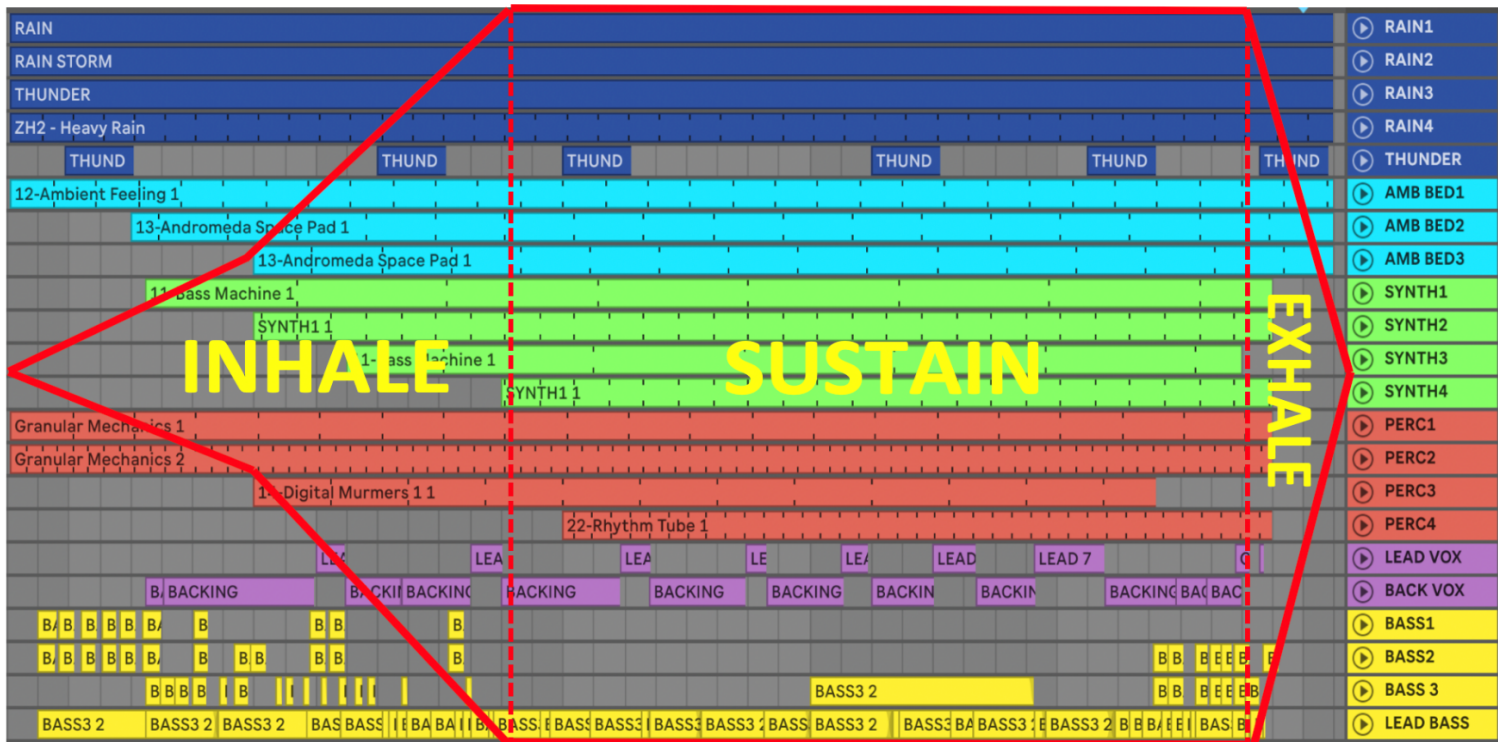


Figure 4.7: A snapshot of “Black”, showing the progression of the piece and interplay between instruments and micro-scale breathing cycle in the movement.

Whilst each movement within *Concept:FUTURE* is unique, they have been composed with the intention of being heard as a whole work. As the series progresses, the electronic elements take over, the rhythmic layers become more pronounced, and the bass guitar becomes more electronically manipulated. Compositional techniques, such as non-metronomical pulses and contrapuntal rhythms, have been borrowed from minimalism, and frequency exploration through the inclusion of white noise from spectralism. Also borrowed from these musical genres is the technique of a slowly evolving structure, used prominently throughout Grisey’s and Reich’s works, and also a cornerstone to many ambient performers. Each movement is composed over a dronal bedding, similar to minimalist and spectralist works also. Through the lack of traditionally functioning harmonic progression, but rather the use of a dronal bedding, harmonic interest is created through the shift in interval colours, a quintessentially minimalist and spectralist technique. The suite is written with micro-scale

breathing gestures within each movement, but also macro-scale gestures that connect each movement with a natural fluidity. These compositional elements have not been incorporated as a means to create a ‘pure’ minimalist or spectralist series, but instead have been used to create a new territory authentic to my own influences and practices.

## ***Dissonance***

*Dissonance* is one of the two notated compositions within this portfolio, and is written for acoustic bass, electric bass, and drumsticks. The piece utilises many extended techniques available to the bass guitar and disrupts the expectation that a bass guitar is primarily an instrument of support within a rhythm section. Primarily, *Dissonance* explores different timbres available on the bass guitar, not only via the use of two different sounding basses (acoustic and electric), but also through the use of various extended techniques, such as drumsticks hitting bass strings, muted strings, harmonics, and slaps and pops. These extended techniques have been utilised in such a way that the two bass guitars, which already have inherently different natural sounds, are further contrasted. The softest sound of the extended techniques would be the muted strings sound, with a ‘dull’, mostly unpitched sound, and the harshest extended technique utilise would be the drumstick hits. These are the most difficult of all the extended techniques to achieve, as it requires the performers to place the bass guitar on their laps (similar to the manner in which a lap guitar is played), and then with their fretboard hand muting all strings, and with their plucking hand to strike the notated string over the bridge. The sound created by striking the strings in such a way is harsh, metallic, loud, yet pitched to the string tuning. A large portion of the score is aleatoric, with large time-based cells and headless stems leaving a portion of the score guided improvisation, similar to Grisey’s use of non-traditional notation<sup>74</sup>. By choosing to use these non-traditional composition techniques, it allows for an element of freedom in the composition. This stems from my interest in musical freedom in composition and improvisation. By leaving small elements of the work to the performer’s choice, each time the work is performed it will be slightly different, and it also brings the performers into the composer’s position, allowing them the freedom to determine the overall product.

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<sup>74</sup> Grisey’s use of aleatory is evident across his entire body of creative works. See *Periodes* as one example of aleatory within Gerard Grisey’s compositions. Grisey, Gerard. *Periodes* (1974) Performed by Internationale Ensemble Modern Akademie (1974). Available at: <https://www.youtube.com/watch?v=Yljhvouhh2Q>



*Dissonance* does not feature a sole prominent pulse, but rather two pulses that appear at moments within the piece. For example, a chugging quaver or semiquaver rhythm. The use of an incredibly subtle pulse that does not remain throughout the entirety of the work is similar to the way that Gerard Grisey utilises a pulse throughout his works<sup>75</sup>. These moments of rapid pulses happen at small points throughout the piece, during the aleatoric cells. Within the traditionally notated sections, the pulse is voiced through the chords, creating one long pulse that also appears at moments before disappearing completely. These moments of re-emerging pulses are similar to the way that Philip Glass treats pulses, where instruments hold pulses different to each other, but unlike Glass who opts to keep these throughout and subtly shifts them in and out of focus, I pull the pulses out entirely, choosing small moments for a pulse to return briefly.

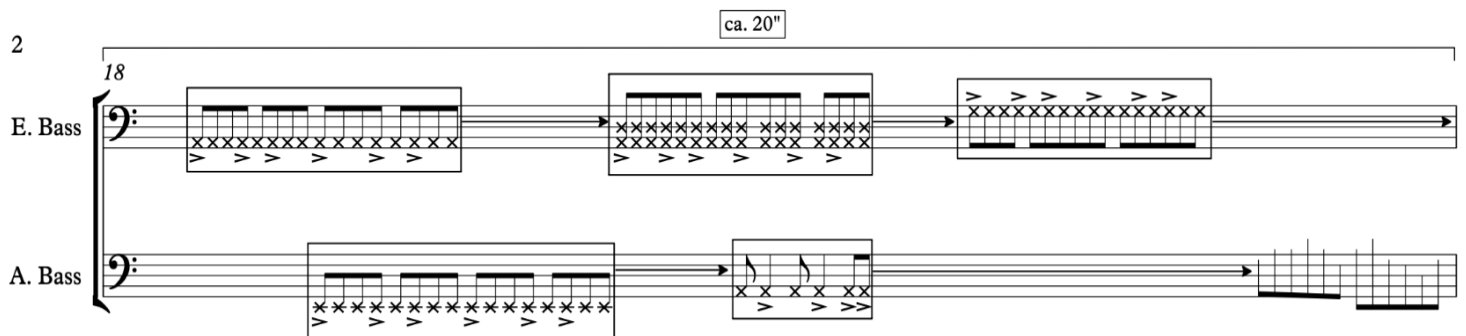


Figure 4.9: Excerpt from *Dissonance*, showing a rhythmic pulse within one of the cells.

Harmonically, this piece has only small elements of any traditional harmony voiced through the chords played by the acoustic bass at only four points across the whole score. A key signature has deliberately been avoided, as the headless stems are intended to be entirely free harmonically for the performer to decide, only rhythmic parameters specified. The use of chords creates a false sense of harmonic movement, as Philip Glass often does within his own works, but at its core this piece is a harmonically static composition. As the title of the piece states, the harmony that is present across the bass voices is often dissonant, and the focus of the work has not been placed on harmonic enrichment, but rather timbral exploration through the use of various extended techniques and interval colour exploration. Structurally, the piece is not as clearly balanced as *Concept:FUTURE* is, with no clear indication of an opening or

<sup>75</sup> As noted in the previous chapter, Grisey uses block-like structures within his compositions. In specific blocks within his creative works there is a subtle pulse that underlines the section, creating a drive. Although the pulse is not as prominent as a pulse within Steve Reich's compositions, there is often a pulse present.

closing passage – a compositional choice I make throughout both of my notated works in this portfolio. Like *Grain*, this piece also does not feature a clearly defined peak or climax, but rather several small moments where the intensity increases momentarily before pulling back. *Dissonance* is written as a work with several mildly long breaths, with a few moments of rapid flurries where timbral exploration remains at the centre.

## ***Grain***

Like *Dissonance*, *Grain* is a timbre driven piece. Written for solo double bass and electronics, interest is created through the addition and subtraction of layers, and the use of different techniques to create sounds. Like *Concept:FUTURE*, this piece is built upon dronal beddings, voiced through the looped layers. And like *Concept:FUTURE*, *Grain* is a work that does not utilise traditional harmonic progression rules, but rather explores shifting interval colours and timbral sounds to create interest. For example, the looped layers use percussive body hits on the double bass to create a purely rhythmic sound, whilst the live layer uses a combination of arco, pizz, harmonics, electronic effects, and Bartok pizzicatos to change the timbre.

At its most texturally dense point, this work has three layers of double bass voices used in a similar way to the electric bass guitar tracks in “Black”. This work also incorporates a strong pulse throughout, held throughout the looped layers. Due to the nature of a recorded loop, the pulse is not shifted through the addition of notes, but rather through a time signature shift in the leading melodic line. By creating a time signature change in various parts of the work, where the live layer shifts to a 5/4-time signature against the 4/4 recorded loops, the sense of the pulse is shifted. This happens at four points throughout the piece, so that the pulse finally returns at the conclusion to its original beat.

*Grain* also heavily incorporates elements of non-traditional notation, with cell-like notation for the looped elements throughout the score. There is a heavy use of headless stems, leaving



Figure 4.10: Excerpt from *Grain*, showing the time signature change against the looped layers. The looped layers are represented through the middle and bottom line, with the solid line through the bars. The top line is the main 'melodic' line.

quite a lot of the harmony up to the performer to decide, allowing for an element of improvisation in. Harmonically, this piece is static, with no key signature specified, and no clearly determined harmonic progression throughout the piece. Focus in *Grain* is placed solely on timbral development, and any use of harmonic progression has been deliberately avoided. As in *Dissonance*, headless stems are used in small areas within the score, leaving the pitch movement at points to be decided by the performer (although suggested direction in pitch movement are suggested, and rhythms are notated).

Structurally, this piece is not as balanced as the movements of *Concept:FUTURE* is, there is no clearly defined climax of the piece, nor moments of silence or minimal textures. *Grain* has been written as a piece that really does not obviously reach a climatic peak throughout, the texture reaches its thickest point by bar 14 and remains that way until the final 4 bars, creating a false sense of never-ending crescendo. The opening and closing phrases aren't as balanced or clearly defined as other works in this portfolio either, the opening of the piece being the first 13 bars and the closing arguably the last 11 bars (starting at bar 81 with the final repetition of the phrase that has been played at several points throughout the piece). The other works within this portfolio have been written around breathing cycles, *Concept:FUTURE* being a long breath, *Dissonance* several mild breaths with small staggers throughout, but *Grain* is more like several people breathing rapidly with small moments of long breaths.

None of the creative works within this portfolio have been created with the intention of creating 'pure' American minimalist, French spectralist, ambient, or electronic works. However, the compositional and performative elements borrowed from these musical genres have inspired much of these works, creating envelopes of sound emergent from the influence

of nature and the climate crisis. The fusion of compositional and performative elements from each of these musical styles has aided in the development of creative works that operate within a new hybrid territory. This hybrid territory is one authentic to my own musical interests and is therefore unique and a reflection of my own interests and practices. Through the creation of *Concept:FUTURE*, I have been able to open up further dialogue surrounding the issue facing all of society today, the climate crisis, as critic Mark Bosh stated at the premiere of “Green”:

*“... The political dimensions of which her sound and stage presence spoke to with an uneasy and truly beautiful ambivalence. Her sampling of speeches from Greta Thunberg to David Attenborough among others was tasteful and well-worked, and I think there’s real potential here for sharing the words of climate leaders beyond the mainstream...”<sup>76</sup>”*

As of November 17<sup>th</sup>, 2019, the playlist I have uploaded to SoundCloud of all of the movements of *Concept:FUTURE* to has received over 100 plays across multiple countries (the United States of America, Croatia, several states within Australia, to name a few). This shows that the series has begun to make an impact on people, and that it is being shared amongst society. Although the statistics are not overwhelming, the tracks have not received hundreds of plays individually, in the short period that I have had these tracks uploaded to a public platform, they have been heard in countries that I have no direct connections with. I have received ample support from students and academics at various institutes across Australia who have shown interest in this series and other recorded works of mine, and even from those well-outside of the academic field via word-of-mouth and the algorithms of SoundCloud. Although this series is now completed, I believe that there is potential for the series to continue to grow, for further movements to be written and performed, and for this message of the climate crisis to continue to impact people and spark discussions.

My notated works have begun to close the gap between seemingly juxtaposing musical genres, American minimalism, French spectralism and American nu-jazz, and introducing a new breath into the contemporary classical field; a field that is rapidly evolving

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<sup>76</sup> A review of the premier of my piece “Green” from the *Concept:FUTURE* suite, stating the potential of opening up further discussions of the climate crisis. Bosch, Mark. “Live review: Mark sees Lost+Sound pop+up ii” *CutCommon Magazine*, May 30, 2019. <https://www.cutcommonmag.com/live-review-mark-sees-lostsound-popup-ii-2/>

and continues to look for new and innovative ways to compose and perform. Although these works are yet to be performed, steps have begun to be taken for these works to be premiered and recorded. The notated and performed works are all developed around the compositional concepts of timbral and interval colour exploration, utilising rich textures to further enhance interest, and have rejected traditional Western harmonic progression rules in favour of harmonic rules adopted by American minimalist and French spectralist composers. The works within this portfolio have addressed the gap in academic literature between American minimalism, and French spectralism, whilst also noting the connections between these musical styles with that of nu-jazz, funk jazz, electronic, and ambient works.

## Chapter Five: Conclusion

The portfolio of compositions as discussed throughout this paper has been primarily concerned with exploring the inherent connections between American minimal music and French spectral music, with substantial influence from ambient, nu-jazz, and electronic music. Through the analysis of key compositional characteristics utilised by all influencing musical styles (rhythm, harmony, extended techniques, improvisation, and aleatory), these creative works have created a new hybrid territory that incorporates these elements in an original compositional voice. This hybrid territory is authentic solely to my own practices, and none of the works within this portfolio have attempted to recreate what has already been created in music by the noted composers, but rather draw from these influences to create new works that exist in a fusion territory.

This fusion territory has addressed a large gap in academic knowledge, the parallels between American minimalism and French spectralism. As this paper has explored, there are inherent connections between the two seemingly diverse musical cultures, and this research project – fuelled by a practice-based approach – has brought light to the relationship between the two genres. Through ethical cross-cultural research grounded in Steven Nuss’ concept of hybrid territories, this paper has addressed just some of the connections between the two styles, whilst also noting the connections between the contemporary classical musical realm (American minimalism and French spectral music) with electronic music, ambient music, jazz funk, and nu-jazz, forging connections between ‘high art’ and ‘low art’. Influences from Chinese cosmology, specifically *qi*, have been used to not only inspire the creative works in the portfolio, but also to connect these musical cultures. The works share structural characteristics, defined by micro balances within the pieces through the concept of breath, and also macro balance across the suite *Concept:FUTURE*. Breath cycles have been utilised as a means to connect each movement within the *Concept:FUTURE* suite, and also the two notated works *Grain* and *Dissonance*.

A by-product of *Concept:FUTURE* has also been the opening up of a dialogue of the most significant issue facing the societies today, the issue of the climate crisis. By creating works that explore the climate crisis issue, with fragmented vocals from significant speeches made by people heavily concerned by the climate crisis, I have attempted to share the message of this crisis spoken by leaders around the world with a wider audience.

*Concept:FUTURE* is just in its early stages and has the potential to grow to an even larger scale work, should there be possibility for this project to continue to develop at a later stage.

These outcomes that have been addressed are only the beginning of the fusion between American minimalism and French spectral music, of high art and low art, of electronic music and the contemporary classical. These connections, if able to continue to be researched, have the potential to be further explored and reinforced. *Concept:FUTURE* has the ability to continue to spark discussion about the biggest societal issue facing modern humanity, if given the opportunity to further develop. Music is an interconnecting sonic language, with links between cultures that has the potential to speak to all people, regardless of any social, racial, or political barriers that may exist, and should this series continue to develop the message embedded within the work could be able to continue to instigate dialogue about the climate crisis. This gap in academic knowledge between the primary two musical genres discussed throughout this thesis has only just begun to be discussed, and by no means does this paper truly cover the lack of research in this area. However, through the approach this paper has undertaken, from the perspective of a bass guitar player deeply interested in societal issues such as the climate crisis, the portfolio and subsequent analysis has begun to address this gap between minimalist and spectralist approaches to sound as a hybrid frame for compositional voice.

## Bibliography

- Airya* (Brazil, Prisma Techno, 2018)  
<https://www.youtube.com/watch?v=OMu5faFYDIIs>
- Bandt, Ros. 'Starzones' from *Stargazer* (1989). Move Records  
[https://www.youtube.com/watch?v=\\_FImSIRKfIU](https://www.youtube.com/watch?v=_FImSIRKfIU)
- Bandt, Ros. *Stack* (2001). Move Records.  
<https://www.youtube.com/watch?v=Mo0XX5XrEOI>
- Bedrosian, Aram. "A Dark Light" (Canada, Aram Bedrosian, 2017).  
<https://www.youtube.com/watch?v=ko5LE9DBtC0>
- Besharse, Kari E. "The Role of Texture in French Spectral Music", (PhD Diss., University of Illinois, 2009): 5
- Bosch, Mark. "Live review: Mark sees Lost+Sound pop+up ii" *CutCommon Magazine*, May 30, 2019 <https://www.cutcommonmag.com/live-review-mark-sees-lostsound-popup-ii-2/>
- Chocholko, Alex. "Immunity: How Jon Hopkins Changed Electronic Music in 2013", *Medium*, May 25, 2018 <https://medium.com/@alexchocholko/immunity-how-jon-hopkins-changed-electronic-music-in-2013-7582dedb6216>
- Cullis-Suzuki, Severn. "The Girl Who Silenced the World for Five Minutes" *Earth Summit Rio De Janeiro*, June, 1992 <https://www.youtube.com/watch?v=oJJGuIZVfLM&t=>
- Davidson, Robert. "Greta Thunberg's 'How Dare You' Speech" performed by *Megan Washington and Robert Davidson* (December, 2019). Available on *The Guardian*, <https://www.theguardian.com/environment/video/2019/dec/09/greta-thunbergs-how-dare-you-speech-performed-by-megan-washington-and-robert-davidson-video>
- DiCaprio, Leonardo. "UN Messenger of Peace" *Climate Summit*, September, 2014.  
<https://www.youtube.com/watch?v=qkZ13cVUbJs>
- Frahm, Nils & A Winged Victory for the Sullen. Improvisation performance at the 2015 BBC Proms <https://www.youtube.com/watch?v=e1mHyj3lubQ>
- Frahm, Nils. 'Says' from his album *Spaces*, (2013)
- Frahm, Nils. "Says" *Live on KEXP*, September 26, 2013  
<https://www.youtube.com/watch?v=xLNeZogTsK8>
- Frahm, Nils. *Spaces*, (London, Erased Tapes, 2013)  
<https://www.youtube.com/watch?v=cLtP6CnJfK>



- Glass, Philip, “*Opening*’ from ‘*Glassworks*” (1981) studio recording for Sony Classical Records (1982) [https://www.youtube.com/watch?v=\\_2vRbNehGB0](https://www.youtube.com/watch?v=_2vRbNehGB0)
- Glass, Philip. *Glassworks* (United States of America, CBS, 1981)
- GoGo Penguin. “Control Shift”, *Ocean in a Raindrop* (London, Blue Note Records, 2019). <https://www.youtube.com/watch?v=0v11mlHCD-k>
- GoGo Penguin. “Live Improvisations from Old Granada Studios” (2016) <https://www.youtube.com/watch?v=UokxELNWkJ4>
- Graham, Larry. “Hair” Live at North Sea Jazz Festival (2016) <https://www.youtube.com/watch?v=mgxL1fkDdzc>
- Grisey, Gerard. *Partiels*, (1975), performed by Asko Ensemble (2005). <https://www.youtube.com/watch?v=1v7onrjN6RE>
- Grisey, Gerard. *Periodes* (1974) Performed by Internationale Ensemble Modern Akademie (1974) <https://www.youtube.com/watch?v=Yljhvouhh2Q>
- Grisey, Gerard. Preface from *Periodes* (1974)
- Hasegawa, Robert. “Gerard Grisey and the ‘nature’ of harmony” *Music Analysis* (2009) vol. 28, 349-371
- Hicks, Scott. *Glass: A Portrait of Philip in Twelve Parts*, (NYC: Koch Lorber Films, 2007)
- Ho, Edward. “Aesthetic considerations in Understanding Chinese Literati Musical Behaviour” in *British Journal of Ethnomusicology* Vol. 6 (1997)
- Hopkins, Jon. *Immunity* (London, Domino Records, 2013) <https://www.youtube.com/watch?v=PYUF74K93IY&list=PLUlrPpQ3-J0e8KAyr6JEQXp8rN030UU6G>
- Hopkins, Jon. *Open Eye Signal*, (London, Domino Recording Company, 2013)
- Kingslake, Reverend Dr Brian. Review of *Studies in African Music*, by A. M. Jones, *African Music* 2, No. 2 (1959)
- Mertens, Wim. “Minimal Music” in *American Minimal Music* (Kahn & Averill, 1983): 12
- Miller, Marcus. “Power” Live at Festival Jazz Lugano (2010) <https://www.youtube.com/watch?v=XqTCAZK9rzY>
- Murail, Tristan. *Ethers*, (1978), performed by Agento Chamber Ensemble (2006). A recording of this work with attached score can be found here: <https://www.youtube.com/watch?v=CqHbVzmtSrs>

- Neyland, Nick. "Nils Frahm: Spaces", *Pitchfork*, January 15, 2014  
<https://pitchfork.com/reviews/tracks/16524-nils-frahm-says/>
- Nuss, Steven. "Hearing "Japanese", Hearing Takemitsu", *Contemporary Music Review* 21, No. 4 (2002): 35-71
- Potter, Keith, Gann, Kyle. *The Ashgate Research Companion to Minimalist and Postminimalist Music* (United States: Ashgate, 2013): 24-25
- Potter, Keith. "Steve Reich: Thoughts for his 50<sup>th</sup> Birthday Year" in *The Musical Times*, Vol. 127, No. 1715 (1986): 13-17
- Potter, Keith. "Writings on Glass." *TLS, the Times Literary Supplement*, no 5013 (1999).
- Red Hot Chili Peppers. Live at Hyde Park (2004) <https://youtu.be/DvdVrgWBgzQ>
- Reich, Steve. 'Drumming' *Composers Notes*, (1971)  
<https://www.boosey.com/cr/music/Steve-Reich-Drumming/1374>
- Reich, Steve. *Music for 18 Musicians* composers' notes, (1976)  
<https://www.boosey.com/cr/music/Steve-Reich-Music-for-18-Musicians/548>
- S. M. V. "Thunder" (Ohio, Heads up, 2008)  
<https://www.youtube.com/watch?v=nOyQtoz3II4>
- S. M. V. "Thunder" Performed live at Jazz Festival Vitoria-Gastetz (2009).  
<https://youtu.be/A5BkCp4KfZ0>
- Schön, Donald A. 'Introduction' in Donald A. Schön *The Reflective Practitioner: How Professionals*
- Schön, Donald A. *How Professionals Think in Action* (USA: Basic Books, 1983)
- Schwarz, K. Robert. "Steve Reich: Music as a Gradual Process: Part II" in *Perspectives of New Music*, Vol. 19, Nos 1 and 2 (1981): 225-286
- Schwarz, K. Robert. "Steve Reich: Music as a Gradual Process: Part I" in *Perspectives of New Music*, Vol. 19, Nos. 1 and 2: (1981): 373-392
- Sculthorpe, Peter. *Kakadu* (1988), New Zealand Symphony Orchestra (2004)  
[https://www.youtube.com/watch?v=N2qqj1\\_ILyA](https://www.youtube.com/watch?v=N2qqj1_ILyA)
- Smith, Hazel and Roger Dean, 'Introduction' in Hazel Smith and Roger Dean (eds), *Practice-Led Research, Research-Led Practice in the Creative Arts* (Edinburgh: Edinburgh University Press, 2009): 19-25.
- Sylvester, Nick. "Triosk meets Jan Jelinek: 1+3+1". *Pitchfork*, February 5, 2004  
<https://pitchfork.com/reviews/albums/8251-131/>

Think in Action (New York: Basic Books, 1983): 31-45.

Thunberg, Greta. “How Dare You”, *UN Climate Action Summit, New York*, September 23, 2019 <https://www.youtube.com/watch?v=oJJGuIZVfLM&t=>

Thunberg, Greta. “School strike for climate – save the world by changing the rules” *TedxStockholm*, December, 2018 <https://www.youtube.com/watch?v=EAmUIEsN9A&t=>

Triosk & Jan Jelinek. “Neckless” (Berlin, ~scape Records, 2003) <https://www.youtube.com/watch?v=EjCZpBq-HFI>

Triosk. “Visions IV” (2006) [https://www.youtube.com/watch?v=d1H4\\_koGPW8](https://www.youtube.com/watch?v=d1H4_koGPW8).

Weather Report. Live at Montreal Jazz Festival (1982) <https://www.youtube.com/watch?v=8cpwaq7CxD4>

Wilkins, Lucy. *Creative Music Composition: The Young Composer’s Voice*. (NY: Routledge Publishing, 2006)

Wu, Chia-Ying. “The aesthetics minimalist music and a Schenkerian-oriented analysis of the first movement ‘Opening’ of Philip Glass’ ‘Glassworks’”: 31

**Volume Two**  
**Audio recordings**

***Concept:FUTURE***

***“Green”***

<https://soundcloud.com/user-502769971/conceptfuture?in=user-502769971/sets/concept-future>

***“Blue”***

<https://soundcloud.com/user-502769971/blue-conceptfuture?in=user-502769971/sets/concept-future>

**“Black”**

<https://soundcloud.com/user-502769971/black-conceptfuture?in=user-502769971/sets/concept-future>

# **Grain**

**For Solo Double Bass and Electronics**

**Emma Harlock**

Approximate runtime **3-minutes 10**

This score utilises a combination of live looped layers to be recorded, played, and stopped via Ableton live, and a delay effect. These are to be controlled by the performer via MIDI foot pedals. Due to the inclusion of electronic elements in this work, it is best that the performer is seated if possible, to allow for access to the foot pedals at all times. This score also utilises extended techniques throughout, which have been noted both here in the preface and also in the score through written indications. The following legend will explain the non-traditional notation throughout the score.



## Notation legend:

### Body hit, looped



A large slash stem like this one is indicative of a percussive body hit on the body of the double bass. The desired sound is a large, booming one (best achieved on the front of the body near the shoulder of the bass).

This percussive rhythm is to be looped via the MIDI foot pedals into Ableton Live and should remain sounding for the entirety of the large line that continues after. As a second looped bass voicing is introduced, the first should continue until indicated otherwise.

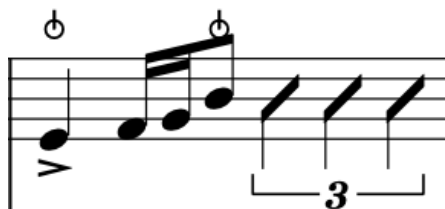
### With delay pedal



A boxed section with delay pedal indications above indicates the passage that should be played with the delay effect on. Once the passage has been played, the effect is then to be turned off, and the natural non-digitally manipulated bass sound to continue.



Empty circles above notes are indicative of a harmonic played on roughly the 12th fret position, the natural harmonic of the string indicated.



A circle with a line above a note is indicative of a Bartók pizzicato or similar. The desired sound is one similar to a 'pop' technique on a bass guitar, where the finger is hooked beneath the string and pulled back, creating a harsh, distinctive sounding note compared to a naturally sounded pizzicato.



Headless stem notation is indicative of an improvised passage where the performer may determine the notes played to the notated rhythms. The pitch gestures have been suggested with the placement of the headless stems, however ultimately the final pitching is left to the performer.

# Grain

For solo Double Bass and Electronics

Emma Harlock

**A**

♩ = 120

Double Bass

arco. gradual sul pont. nat.

*p* *mf* *p*

With delay pedal

pizz. *mp*

Double Bass

Body hit, looped

*mp*

**B**

14

Db.

arco. gradual sul pont.

*p* *mf*

With delay pedal

Harmonic

*mp*

Db.

Body hit, looped

*mp* 3

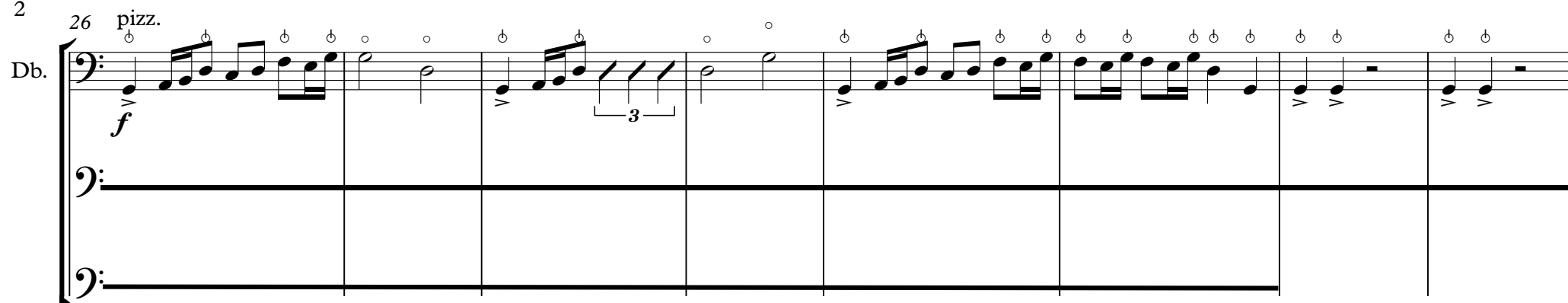
2

26 pizz.

Db.

*f*

3

**C**

34

Db.

*mp*

*f*

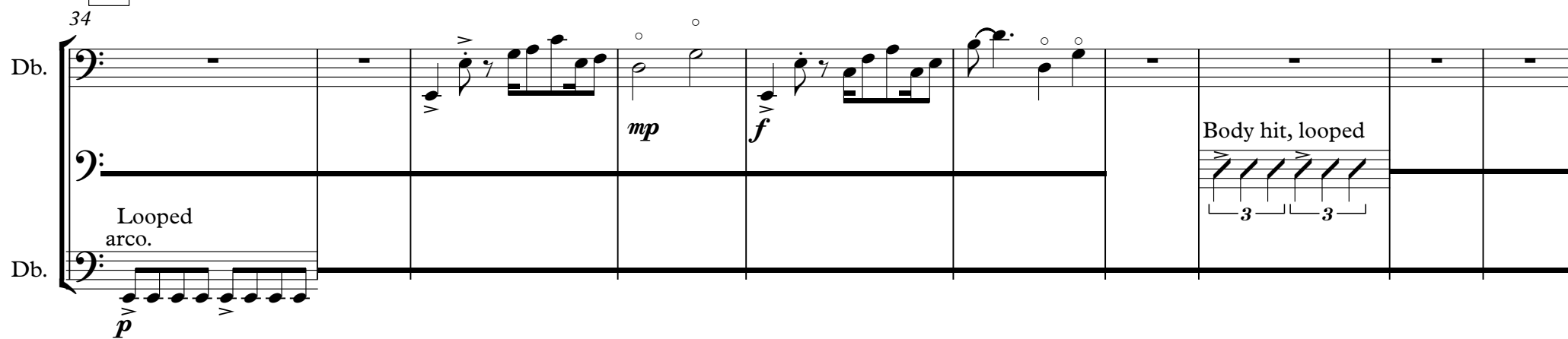
Looped arco.

Body hit, looped

3 3

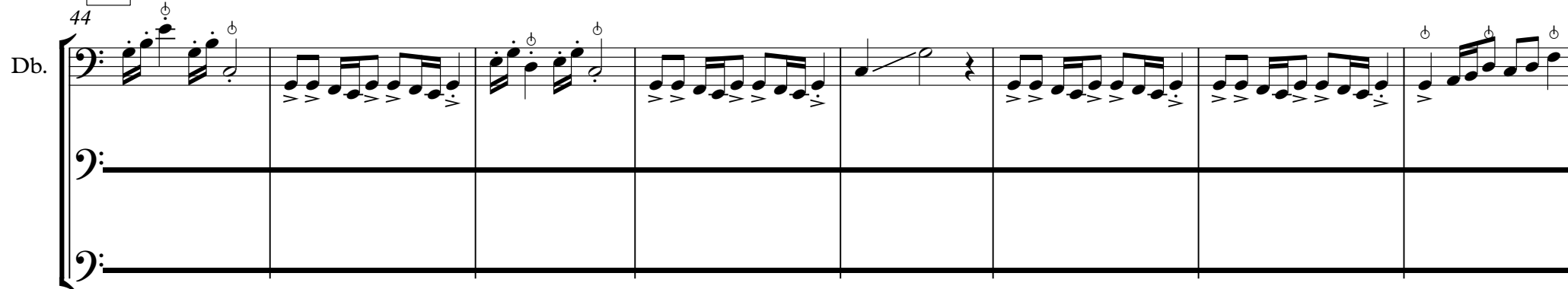
Db.

*p*

**D**

44

Db.



With delay pedal

Db. 52

*mf*

arco.

pizz.

*mp*

mf

arco.

pizz.

mp

Db. 61

61

Db. 68

68

77

Db.

77

85

Db.

With delay pedal

85

With delay pedal

*ff*

# **Dissonance**

**For Electric Bass Guitar and Acoustic Bass Guitar**

**Emma Harlock**

Approximate runtime **5-minutes 30**

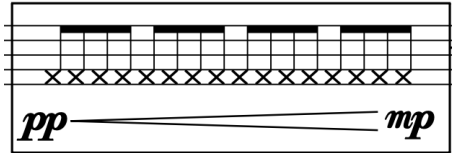
This score utilises a combination of time-based cells and strict timing throughout.

It is recommended that the performers play seated on the floor facing each other to make switching between percussive ideas easier. The sections that indicate the performers to hit the string near the bridge of the bass guitar will require the performers to place the bass on their lap, similar to a lap guitar.

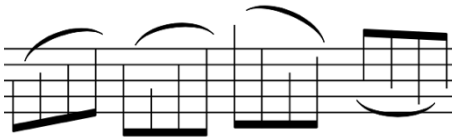


## Notation legend:

Drum stick hit near bridge

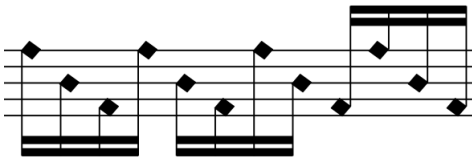


'X' noteheads are indicative of a drumstick hit near the bridge of the bass guitar, the sound produced should be guttural. The pitch may be shifted by hitting closer or further from the bridge, though should remain as close as possible. While hitting the bridge, the fretboard hand must mute the strings over the fretboard, to reduce the swamp of noise and create shorter, staccato notes.



Headless stem notation is indicative of an improvised passage, where the performer may determine the notes played to the notated rhythms. The pitch gestures have been suggested through the placement of headless stems, however ultimately the final pitching is left to the performer.

### Palm mute strings



Diamond noteheads are indicative of palm muting the strings on the fretboard, creating a softer percussive sound.



Open circles above notes indicates a natural harmonic to be played on the 12<sup>th</sup> fret of the suggested string.

# Dissonance

Emma Harlock

**A** **Controlled**

♫ = Freetime

ca. 30"

Drum stick hit near bridge

Electric Bass

Acoustic Bass

*pp* *mp*

*pp* *mp*

**B**

$$\text{♩} = \frac{120}{2}$$

The musical score for measures 1-10 is divided into two systems. The first system contains measures 1-4, and the second system contains measures 5-10. The E. Bass part is written in a single staff with a 4/4 time signature. The A. Bass part is written in a single staff with a 4/4 time signature. The key signature has one flat (B-flat). The score includes various musical notations such as eighth notes, quarter notes, and rests. The A. Bass part features a prominent 8va (octave) marking in measures 1, 3, 5, 7, and 9, indicating that the notes should be played an octave higher than written. The E. Bass part includes a 10 (decima) marking in measure 5, indicating a decima (tenth) note value. The A. Bass part includes a 3 (triplo) marking in measures 1, 3, 5, 7, and 9, indicating a triplet of eighth notes.

2

**C** More free

♩ = Freetime

ca. 20"

18

E. Bass

A. Bass

Section C, measures 18-20. E. Bass has three boxes of rhythmic patterns. A. Bass has two boxes of rhythmic patterns. Both parts end with sustained notes.

**D**

♩ = 120

19

E. Bass

A. Bass

Section D, measures 19-25. E. Bass has a melodic line with triplets. A. Bass has sustained notes with triplets.

26

E. Bass

A. Bass

Section D, measures 26-32. E. Bass has a melodic line with triplets. A. Bass has sustained notes with triplets.

34

E. Bass

A. Bass

8va

Palm mute strings

**E** Slowly increasing frenzy

♩ = Freetime

ca. 30"

41

E. Bass

A. Bass

**F** Loud and aggressively

ca. 20"

42

E. Bass

A. Bass

*p* *mp* *p* *ff*

*f* *p* *ff* *p*

# G Energetically, slowly unwinding

ca. 20"

43

E. Bass

A. Bass

*mf*

*ff*

ca. 40"

44

E. Bass

A. Bass

*mp*

*mp*

*mp* *f* *mp*

*mp* *f* *mp*

# H Calmly

♩ = 120

45

E. Bass

A. Bass

3

3

3

3

3

3

Palm mute strings

8va

8va

8va

53

E. Bass

A. Bass

8va

♩ = Freetime

ca. 20"

60

E. Bass

A. Bass

**I** Slowly

♩ = 110

Harmonic on 12th fret

61

E. Bass

A. Bass

8va

3

pp

pp